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MOTIVATIONS FOR NUCLEAR TERRORISM
IN THE UNITED STATES

by

Peter Joseph DiPaolo

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Thesis Advisor: Peter R. Lavoy

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MOTIVATIONS FOR NUCLEAR TERRORISM IN THE UNITED STATES

Peter Joseph DiPaolo
Lieutenant, United States Navy
B.A., University of South Carolina, 1986

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Author: _____
Peter Joseph DiPaolo

Approved by: _____
Peter R. Lavoy, Thesis Advisor

_____
W. M. "Mike" Dunaway, Second Reader

_____
Thomas Bruneau, Chairman
Department of National Security Affairs

ABSTRACT

The demise of bipolarity created new security concerns for the United States. Terrorism now thrives in the new world environment. While much has been written on terrorism, the specter of nuclear terrorism in the United States has received little attention. Nuclear terrorism cannot be looked at through the traditional nuclear weapons paradigm nor can it be viewed within the confines of the traditional terrorism paradigm. There currently are two perspectives on nuclear terrorism: the optimists, who do not see it as a threat, and the pessimists, who see it as inevitable. Each view has its merits but neither alone can explain this security concern. Merging of the two views is required to understand the motivational considerations behind this potentially horrific problem. A brief history of U.S. policies on nuclear weapons and terrorism is offered to explain why there has not been a U.S. policy on *nuclear terrorism*. The possibility of nuclear terrorism is real. A better understanding of the *nuclear terrorist* mindset is required if effective policies are to be developed.

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I. INTRODUCTION

Only at our own peril can we continue to ignore the specter of nuclear terrorism . . .

William L. Ury[1]

The threat of a superpower nuclear showdown is no longer the dominant U.S. security concern. The instability created by the break-up of the Soviet Union, nevertheless, may yet have dangerous implications for the United States. With the demise of bipolarity, a much less stable world exists; and terrorist organizations thrive in this instability. Terrorism strikes fear in the American public because it can happen anywhere, anytime, and to anybody. Paul Wilkinson, quoting Raymond Aron, has noted,

> an action of violence is labeled 'terrorist' when its psychological effects are out of proportion to its purely physical result ... (and) helps to spread fear, for if no one in particular is a target, no one can be safe.[2]

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[1] William L. Ury, *Liner Notes*, in Paul Leventhal and Yonah Alexander, eds., Preventing Nuclear Terrorism: The Report of the International Task Force on Prevention of Nuclear Terrorism (Lexington, Mass.: Lexington Books, 1987), p. i. Ury was director of the Nuclear Negotiation Project at the Harvard University Law School.

[2] Paul Wilkinson, "Terrorist Movements," in Yonah Alexander, David Carlton, and Paul Wilkinson, eds., Terrorism: Theory and Practice (Boulder, Colo.: Westview Press, 1979), p. 100.

Past incidents of terrorism directed against Americans have occurred on foreign soil. The harsh reality of the February 1993 World Trade Center bombing and the April 1995 Alfred P. Murrah federal building bombing proved that terrorism has "found a home" in the United States.[3] Americans are more sensitive to terrorism today than they were in the past.[4]

Terrorist organizations are more selective in their choice of targets than they have been in the past. They want to strike at more sophisticated, and preferably more vulnerable,

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[3] The bombing of the World Trade Center (WTC) was the worst terrorist attack in the United States since the 29 December 1975 LaGuardia Airport bombing of El Al airlines. Eleven people died and seventy-five were injured in that attack. What made the WTC attack so alarming was that the target was a U.S. target and not a foreign target on American shores. It resulted in six deaths and hundreds of injuries. The A. P. Murrah federal building bombing is the worst terrorist attack in U.S. history. There were 168 confirmed deaths, 19 of whom were children. There are thousands of terrorist attacks in the United States each year, but most of them are relatively minor in comparison. According to a 24 May 1995 CNN report, the FBI's statistics, there were 2,980 bombings in the U.S. in 1993; forty-nine deaths resulted.

[4] Following the WTC attack a March 1993 PRODIGY ® interactive personal service poll indicated that most of the respondents felt that terrorism was more of a threat to them now that it was a decade ago. Slightly more than 67 percent (+/- 6 percent) of the poll's respondents felt that terrorism was a real threat. Twenty percent did not feel terrorism was a threat to them and felt the WTC bombing was an anomaly; the remainder expressed no opinion or felt the change was minimal. Ironically, a 20 February 1994 Los Angeles Times report by Associated Press reporter Rick Hampson indicated that New Yorkers seldom give much thought to the WTC bombing anymore. An April 1995 CNN-USA Today poll on the Oklahoma City bombing yielded nearly similar results: 72 percent felt threatened by terrorism, nearly 25 percent felt the attack was an anomaly, and the remainder expressed no opinion.

targets. Terrorists want to maximize the outcome of their actions' destructiveness while not appearing to be indiscriminate.[5] It has long been argued that "terrorists want a lot of people watching, not a lot of people dead."[6]

A. WHAT IF . . .

Terrorism with "conventional" explosives is a major security concern, but what about nuclear terrorism? What if the 26 February 1993 World Trade Center bombing in New York City or the 19 April 1995 A. P. Murrah federal building bombing in Oklahoma City had destroyed a nuclear power plant or a nuclear material storage facility? What if either of the bombings had used an improvised nuclear device (IND)[7] or a radiological dispersal device (RDD)[8]? What would have been

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[5] Brian M. Jenkins, "International Terrorism: A New Mode of Conflict," in David Carlton and Carlo Schaerf, eds., International Terrorism and World Security (New York: John Wiley & Sons, 1975), pp. 13-20. Jenkins argues convincingly on the terrorists' motives for conducting terrorist activity in the furtherance of their cause.

[6] Jenkins, The Potential for Nuclear Terrorism (Santa Monica, Calif.: RAND Corporation, 1977), p. 8.

[7] An IND is commonly referred to as a "crude nuclear device." Detonation and yield are uncertain; however, these devices are not as technically complicated as a nuclear weapon.

[8] An RDD is a low-tech weapon manufactured by surrounding a conventional explosive with nuclear or radiological material. When detonated there is no "yield," but the radioactive material is carried outward by the force of the blast contaminating the area within the blast radius. The result of employing such a device are

the results of such an attack? Could the United States become the target for nuclear terrorism?

For years the debate on the vulnerability of nuclear materials, including weapons and facilities, was discussed in the classified realm or it dealt with proprietary information. There was a consensus that public discourse may result in a "self-fulfilling" prophecy — a misguided notion shared by academia and the government.[9] Not talking about this dilemma will not make it any less of a problem. Perhaps the opposite is more true; ignoring the problem may actually exacerbate it. The feasibility of nuclear terrorism in the United States requires examination.

B. TWO ASSESSMENTS OF NUCLEAR TERRORISM

There has been much discussion recently about the possible occurrence of terrorism in the United States, and nuclear terrorism in particular. Using an IND or an RDD in a

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the amplified fear and panic it would cause. The ramifications are potential alienation of the support structure of the group.

[9] J. Bowyer Bell, A Time of Terror: How Democratic Societies Respond to Revolutionary Violence (New York: Basic Books, 1979), p. 117. Bell has suggested there may be some merit on the "non-disclosure" of "new ideas for terrorists," but he argues that the ramifications of *not* discussing the issues far outweigh the consequences of discussing them in an open forum.

terrorist attack or striking a nuclear facility — whether it is a nuclear power plant or a nuclear weapons facility or storage area — would garner any terrorist group the "undivided" attention of the United States and the world. Would terrorists want to face the power of the United States following an attack on any U.S. nuclear facility? Often these facilities are lightly or poorly guarded making them relatively easy targets for terrorist attack.[10] Can these potential attacks be avoided? How might the U.S. nuclear industry fall victim to a new form of terrorism?

Currently there are two opposing perspectives about the likelihood of nuclear terrorism. They are based upon differing

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[10] Observers have noted weakness in security at nuclear power facilities ranging from loose controls of security clearances to theft of nuclear material. Chapter III discusses some of these concerns. For further discussions on security problems at U.S. facilities see Yonah Alexander and Charles K. Ebinger, eds., Political Terrorism and Energy: The Threat and Response (New York: Praeger Publishers, 1982); Louis Rene Beres, Apocalypse: Nuclear Catastrophe in World Politics (Chicago: The University of Chicago Press, 1980); Beres, Terrorism and Global Security: The Nuclear Threat (Boulder, Colo.: Westview Press, 1979); Peter Faulkner, ed., The Silent Bomb: A Guide to the Nuclear Energy Controversy (New York: Random House, 1977); Charles W. Kegley, Jr., ed., International Terrorism: Characteristics, Causes, Controls (New York: St. Martin's Press, 1990); Robert H. Kupperman and Darrell M. Trent, Terrorism: Threat, Reality, Response (Stanford, Calif.: Hoover Institution Press, 1979); Paul Leventhal and Yonah Alexander, eds., Nuclear Terrorism: Defining the Threat (McLean, Vir.: Pergamon-Brassey's International Defense Publishers, 1986); and Leventhal and Alexander, eds., Preventing Nuclear Terrorism.

assessments of the same facts. The first opinion states that nuclear terrorism will not occur or, at worse, that it is a remote possibility.[11] The second opinion considers the opposite — that some form of nuclear terrorism is likely to occur sometime in the future.[12] For purposes of present discussion, the assessment that *does not* consider nuclear terrorism a major threat will be called the *optimistic view*. Its counterpart will be referred to as the *pessimistic view*.[13]

Before discussing the differences between these two assessments, it is important to understand the similarities between the competing arguments. First, both views opine that the needed technology behind any type of nuclear terrorism exists today; therefore, this is only a minor hurdle for terrorists. While there is *some* disagreement as to the extent

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[11] See Russel H. S. Stolfi (with John W. Amos II), "Controlling International Terrorism: Alternatives Palatable and Unpalatable," in Marvin E. Wolfgang, ed., The Annals of the American Academy of Political and Social Science: *International Terrorism* Vol. 463, September 1982; Scott D. Sagan and Kenneth Waltz, The Spread of Nuclear Weapons: A Debate (New York: W. W. Norton & Co., 1995); Jenkins, "Future Trends in International Terrorism," in Robert O. Slater and Michael Stohl, Current Perspectives on International Terrorism (New York: St. Martin's Press, 1988) and Jenkins, "Will Terrorists Go Nuclear?" Orbis Vol. 29, No. 3, Fall 1985.

[12] See note 10.

[13] Even though the term has negative connotations, which may prejudice the concerns raised by those professing this idea, it best describes the likelihood of terrorists entering the nuclear realm.

of the capability of terrorists to *make* a device, it is conceded by both groups that it is *possible*. Second, insofar as obtaining material for an IND or an RDD, there is also agreement.[14] Third, each group contends that other weapons of mass destruction would be "easier" for terrorists to wield. This is where the commonalties between the two views cease.

The major difference of opinion between the optimistic view and the pessimistic view concerns the motivation of an individual or group to resort to nuclear terrorism in the first place.

1. The Optimistic View

The optimists generally equate nuclear terrorism to the (mis)use of nuclear weapons or INDs. Their arguments are based in the "conventional wisdom" of nuclear weapons policies, proliferation issues, and nonproliferation matters. As

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[14] There have been numerous media reports the last several years on nuclear material smuggling from the former Soviet Union; however, there is much speculation on how much material *was not* intercepted. According to a 12 August 1994 Associated Press report, which cited European and Russian sources, it is estimated that 70 percent to 90 percent of the smuggled material successfully reaches its destination. To worsen matters, the United States has "lost" nuclear material, which is referred to as "MUF"— material unaccounted for. Additionally, for a simple RDD fissile material is not needed, and there are relatively loose controls on the radioactive material at U.S. colleges and universities. (For additional information, see the 15 April 1995 Associated Press report "Schools Lax on Radioactive Rules?")

a result, these arguments do not adequately address the threat because they do not consider non-state actors as players in the international arena or treat them as irrelevant. Russel H. S. Stolfi, responding to a question on terrorist activity escalating into the nuclear realm, states that "there is an attraction for the more dramatic target . . . however, there is no reason to assume it will happen."[15] Others share Stolfi's viewpoint. Kenneth N. Waltz does not believe that terrorists would want the attention that such an attack would generate; nor does he believe that terrorists are eager to give up what little support they receive from their few supporters.[16] Furthermore, Waltz maintains that terrorists would not resort to nuclear attack because it would not help their cause and he questions their actions in "going nuclear:"

> If we believe that terrorists could, if they wished to, wield nuclear weapons to threaten or damage their chosen enemies, then the important question becomes: why would they want to?[17]

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[15] Stolfi, "Controlling International Terrorism,"pp. 82-3. The articles published in this volume of the journal are a compendium of presentations dealing with terrorism. Stolfi contends that there are other "more likely" targets for terrorists such as liquid natural gas container ships, electrical power grids and substations, or fuel oil refineries.

[16] Sagan and Waltz, The Spread of Nuclear Weapons, pp. 94-6.

[17] Ibid., p. 95.

Fabienne Luchaire, of the Centre d'Etudes Politiques de Defense in Paris, also shares this opinion. She states that nuclear terrorism is the least credible of the terrorist threats and that a shift to it "would mean a profound change in the terrorist methods used until now."[18] There are other scholars who agree. Christopher Dobson and Robert Payne, while acknowledging the potential for terrorists to "join the nuclear club," assert that terrorists would be more likely to resort to chemical and biological means of "mass hysteria" instead of employing nuclear devices.[19] Brian M. Jenkins, while arguing that the requisite technical knowledge necessary to make a nuclear bomb has been within the public domain for more than twenty years, argues against terrorists employing such a device for many of the same reasons cited by Waltz.[20] Jenkins also believes that terrorists lack the necessary skills to

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[18] Fabienne Luchaire, "Subnational Proliferation, Technology Transfers, and Terrorism," in Adam M. Garfinkle, ed., Global Perspectives on Arms Control (New York: Praeger Publishers, 1984), pp. 132-3.

[19] Dobson and Payne, The Terrorists: Their Weapons, Leaders, and Tactics (New York: Facts on File, 1979), pp. 132-6.

[20] Jenkins, "Will Terrorists Go Nuclear?" pp. 508-9. Jenkins prepared this paper for the Conference on International Terrorism: The Nuclear Dimension sponsored by the Nuclear Control Institute held in Washington, D. C. 24-26 June 1985. Mr. Jenkins initially wrote on this topic in a paper of the same title in 1975.

"manufacture" a nuclear device, even a crude "coffee can"[21] device. He states:

> few terrorists, as we know them today, possess the requisite technical skills identified by the experts. There are a few engineers and a handful of scientists within the ranks of contemporary terrorist groups, but most terrorists come from humanities, which may help explain why terrorists, thus far, have not carried out more technically demanding operations.[22]

These arguments, unfortunately, focus on the nuclear weapons issue and do not focus on other aspects of nuclear terrorism. All the works on nuclear terrorism are nearly equally divided between the two views. Jenkins, however, finds himself expressing the opinions of each perspective, although through the majority of his writing he would be considered more of an optimist than a pessimist. He states that:

> nuclear terrorism is neither imminent nor inevitable, if by nuclear terrorism we mean terrorists employing stolen nuclear weapons or a clandestinely fabricated nuclear explosive device to kill or threaten to kill large numbers of people. Lesser terrorist acts in the nuclear domain — the seizure or attempted sabotage of a nuclear reactor, the

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[21] A "coffee can" device is an IND made by surrounding nuclear material with explosives. According to James V. Tyler, of Lawrence Livermore National Laboratory, the chances of obtaining any yield would be extremely small. He further stated that the timing of a nuclear device is a critical and often overlooked factor in obtaining the desired or designed yield.

[22] Ibid., p. 510.

dispersal of radioactive material, an alarming nuclear hoax that may cause panic — are possible.[23]

2. The Pessimistic View

The pessimists foresee some form of nuclear terrorism as an inevitable outcome of the new world environment.[24] Patricia Lewis, director of Verification Technology Information Center, expresses concern about this issue. She states that "should a terrorist group ever threaten to use nuclear (devices), it would have to be taken seriously."[25] It has been argued that with the demise of bipolarity that nuclear materials and weapons would be readily accessible to small non-governmental groups and perhaps even individuals.[26] Colin S. Gray, responding to a

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[23] Jenkins, "Future Trends in Terrorism," in Slater and Stohl, eds., Current Perspective on International Terrorism, p. 261.

[24] Peter J. DiPaolo, "Nuclear Terrorism: How Non-State Actors Can Hold A Country Hostage," (unpublished, 15 September 1995), pp. 5-7.

[25] Associated Press, "Nuclear Smuggling in the Former Soviet Union," 12 August 1994. Ms. Lewis' organization, a London-based independent nuclear watchdog, follows nuclear issues and related security concerns. Her organization has indicated that potential buyers could be North Korea, Algeria, Syria, Iran, Iraq, and Libya. All of these states are known to have sponsored terrorist groups and each, excepting Algeria, are desirous of joining the "nuclear club."

[26] Alvin Toffler and Heidi Toffler, War and Anti-War: Survival at the Dawn of the 21st Century (Boston: Little, Brown and Co., 1993), p. 197-199. The Tofflers were discussing the work of Carl Builder, a strategic analyst at RAND and former director of the Nuclear Regulatory Commission. Builder opined that "global gladiators" and other non-national groups would eventually obtain nuclear weapons through theft or purchase.

question on the likelihood of nuclear terrorism, stated, "Frankly, I'm surprised it hasn't happened sooner. There may be a nuclear explosion in your (U.S.) future."[27] This is a shocking pronouncement from a world renowned scholar and author of nuclear issues.

The essence of Gray's comments are expressed by many Americans as they grapple with the feasibility of nuclear terrorism — the uncertainty and the ensuing devastation at the hands of an unseen enemy. With more terrorist activity anticipated, and some type of nuclear attack a probability, the Americans wonders *if* it will happen in their neighborhood. To add to their fear and concern is the growing amount of literature on nuclear terrorism, an amount that has been increasing for the last two decades.

In the view of the pessimists, terrorists — maybe not the contemporary terrorists as we understand them — may resort to nuclear terrorism in order to "grab the world's attention." John Peter Goss states,

> through violence or threats of violence, terrorism is intended to coerce or intimidate individuals, a community or government in furtherance of political

[27] Mr. Gray made these comments on 02 May 1995 at a lecture at the Naval Postgraduate School in Monterey, California.

> aims. Since, then, the essence of terrorism is violence, there is a certain logic that the terrorists will push terrorism to its extreme limits.[28]

With the public becoming desensitized to "conventional" terrorism, there is a motive for the terrorists to "up the ante" and increase the level of violence.[29]

3. A Synergistic Approach?

Neither side of the nuclear terrorism camps will convince the other side of its opinion. Each argument is valid on certain points but neither alone can explain this security concern because of not fully understanding or, at times, even recognizing the terrorists' motivational considerations. The optimists focus their attention on nuclear weapons and INDs, and do not consider the possibilities of other types of nuclear terrorism. The pessimists suffer from a near "chicken little" obsession in this arena with *anyone* having the capability to apply for membership in the "nuclear club." As Louis Rene Beres states,

> criminals or terrorists who might wish to 'go nuclear' have only to turn to the entry about nuclear

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[28] John Peter Goss in Leventhal and Alexander, eds., Nuclear Terrorism, p. 39.

[29] Several media reports have made a similar speculative assessment. The most notable is Jeffrey D. Simon, "Time for A New Look at Terrorism," USA Today, 07 December 1994.

> weapons (in the encyclopedia) to gain detailed insight into the design principles of fission explosives. Still easier is the manufacture of a radiation dispersal device . . . (or) steal a finished and sophisticated explosive device from a military stockpile of one of the nuclear powers.[30]

Nuclear terrorism cannot be looked at in the traditional nuclear weapons paradigm, nor can it be viewed within the confines of the conventional terrorism paradigm. It requires a merging of the two views as well as a better understanding of terrorism to grasp the motivational considerations behind this potentially horrific problem. Paul Evancoe and Paul Shemella[31] state that nuclear terrorism will likely occur in the United States' future and that U.S. policies and procedures must be improved to cope with its inevitability.[32]

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[30] Beres, Apocalypse, p. 8-10.

[31] Neither of these gentlemen are optimists or pessimists although they believe nuclear terrorism will occur. Each tempers his opinion on the probability of nuclear terrorism with a detailed knowledge and understanding of how and why terrorists act. Their assessment of nuclear terrorism in the United States is supported by their works in the fields of terrorism and terrorists' use of weapons of mass destruction. Moreover, Mr. Evancoe, a terrorism expert, heads the special programs office of Techmatics Inc., a Washington-area high-tech professional security services company. Paul Shemella is a U.S. Navy captain serving as the chief of the policy, strategy and doctrine division of the U.S. Special Operations Command.

[32] See Paul Evancoe in "Nuclear Crisis Response Effort Must Stay Robust," National Defense, April 1995, pp. 46-7 and "Germinating Technology Feeds A-Weapon Scenario," National Defense, October 1994, pp. 18-9. Also, see Paul Shemella, "Defusing Mega Weapons Aim of Revised Doctrine," National Defense, January 1994, pp. 33-4.

C. THE "REST OF THE STORY"

In Chapter II, a brief synopsis of why the federal government's focus on nuclear weapons is offered. Beginning with Truman at the origin of the nuclear age, the U.S. Cold War policy was concerned with the nation-state aspect of nuclear weapons and the related proliferation issues, not terrorism. Conventional terrorism, let alone nuclear terrorism, was not a major issue in U.S. policy because *it* happened elsewhere. In the mid-1960s, domestic terrorism forced a shift in U.S. policy; however, there was still no nuclear element.

During the mid-1970s, the situation changed and U.S. policy began to take a new course. These policy changes gained momentum during the Reagan-Bush years and have continued through the current administration. Also in Chapter II, the terms "terrorism" and "nuclear terrorism" are defined. Additionally, the role of the media and its impact on the public and the terrorists is explored.

Chapter III examines three potential scenarios of nuclear terrorism in the United States. Some of the security concerns at U.S. nuclear facilities are examined as well as a brief examination of disaster preparedness and response plans.

The motivational aspects of *why* an individual or group would want to resort to nuclear terrorism are examined in Chapter IV. Are there any expected benefits for the terrorists? What are the risks for the terrorists in conducting or attempting to conduct nuclear terrorism? Is one type of group more likely to resort to nuclear terrorism than another type of group? These questions are investigated in an appraisal of some of the possible individual and group motivations behind nuclear terrorism.

The final chapter provides a summary and an assessment of the potential for nuclear terrorism occurring in the United States. A brief analysis of current and planned U.S. anti-terrorism policies is also offered.

II. THE ALARM SOUNDED - WAS IT HEARD?

We have seen in recent hijackings and other hostage-takings that the mightiest military machine in the world can be tied down like Gulliver. What would happen if tomorrow's Lilliputians had an atomic bomb, or used other means to cause nuclear violence?

Richard Gephardt[33]

Nuclear terrorism is not new.[34] It is only receiving attention today because of the numerous incidents of plutonium and uranium smuggling in the Newly Independent States (NIS).[35] The worst incident in the NIS was that in which three undercover Russian journalists, working independently, "scrupulously cultivated brokers to break into the "nuclear

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[33] Richard Gephardt, *Liner Notes*, in Leventhal and Alexander, Preventing Nuclear Terrorism, p. i. He is currently the House minority leader and made this statement while he was a presidential candidate.

[34] The next section of this chapter summarizes the history of the nuclear terrorism specter, which dates back to the dawn of the nuclear age. Furthermore, while some would argue about its "legitimacy" as a form of nuclear terrorism, General Douglas MacArthur wanted to spread radioactive material along the Korean border to keep the Chinese communist at bay.

[35] For several of the more in-depth readings on this topic, see John R. Powers and Joseph E. Muckerman, "Rethink the Nuclear Threat," Orbis Vol. 38, No. 1, Winter 1994; Oleg Bukharin, "Soft Landing for Bomb Uranium," Bulletin of Atomic Scientists Vol. 49, 01 September 1993; Lilia Shevtsova, "The August Coup and the Soviet Collapse," Survival: The IISS Quarterly Vol. 34, No. 1, Spring 1992; R. Corelli and C. Mellow, "Nuclear Nightmares," Maclean's Vol. 104, 23 December 1991; and Economist Editorial Staff, "Uranium, Plutonium, Pandemonium," and "How to Steal an Atom Bomb," Economist Vol. 327, 05 June 1993.

black-market."[36] To understand how we reached the point where we are today, with regards to nuclear terrorism, it is necessary to revisit the past.

A. HOW WE GOT HERE

The fear of any nuclear weapon falling into the "wrong hands" was discussed at the beginning of the nuclear era. On 25 April 1945 — nearly three months *before* the first nuclear weapon was detonated — Henry Stimson sent a memorandum to President Harry Truman which stated:

> . . . the future may see a time when such a weapon may be constructed in secret and used suddenly and effectively with devastating power by a willful nation or group of much greater size and material power. With its aid a very powerful unsuspecting nation might be conquered within a few days . . .[37]

Though the discussion here centers on the use of nuclear weapons, it illustrates the fact that the problem has existed for the past fifty years. Bell also states that many of those involved with the nuclear industry began to envision some of the potential problems: theft resulting from inadequate safeguards and sabotage, both of which could be achieved by

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[36] Kirill Belyaninov, "Nuclear Nonsense, Black-Market Bombs, and Fissile Flim-Flam," Bulletin of Atomic Scientists Vol. 50, 01 March 1994, p. 44.

[37] Bell, A Time of Terror, pp. 116-7.

"non-governmental organizations."[38] The break-up of the Soviet Union has magnified the problem of nuclear weapons falling into the wrong hands — and has caused the alarm to sound loudly.[39]

1. Nuclear Weapons As the Focus of U.S. Policy

The U.S. Cold War policies began in March 1947 when Truman addressed the nation before a joint session of Congress. He spoke of the Greek situation saying he was fearful of a void being left after the British withdrew from the area — a void that could be filled by the Soviets.[40] Making the Greek problem a "good versus evil" and "freedom versus democracy" argument, Truman persuaded Congress to spend the first $400 million dollars of the Cold War to bolster the Greek government against the potential Soviets aggression.[41] This issue set the stage for the U.S. containment policy that would become the basis for U.S. policies for the next several decades.

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[38] Ibid., pp. 117-8.

[39] See Powers and Muckerman, "Rethink the Nuclear Threat," for a further discussion on this topic.

[40] Steven Livingston, The Terrorism Spectacle (Boulder, Colo.: Westview Press, 1994), p. 138.

[41] Ibid., pp. 139-140.

By August 1949, just two years after Truman's address to the Congress and four years after the Stimson memorandum, the Soviet Union exploded its first nuclear device. In 1953, the United States and the Soviet Union developed thermonuclear devices. The nuclear arms race was on and, whether it is admitted or not, the conundrum of nuclear terrorism was born.

The Korean War passed, but not without the threat of a superpower nuclear showdown; however, the stalemate was resolved without a nuclear exchange.[42] The debate of the issues gave birth to the U.S. foreign policy of containment.[43] When John F. Kennedy became president the United States and the Soviet Union stockpiled several hundred nuclear weapons. The combined superpowers' nuclear arsenals contained the "explosive force of approximately 60 million kilotons of TNT, which is the equivalent of more than 10,000 World War IIs."[44]

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[42] With the Chinese communists involved in the conflict, the Truman administration feared that the Soviets would invoke the nuclear weapons proviso of the Sino-Soviet treaty in support of the Chinese. U.S. policy makers and military leaders engaged in a debate on the use of nuclear weapons in response to a Soviet strike. The U.S. use of nuclear weapons was ruled out and their use by the Soviets was seen as unlikely.

[43] Formulated by George Kennan, developed by Dean Atcheson, and advanced by John Foster Dulles, this policy would eventually lead the United States into Vietnam.

[44] Beres, Apocalypse, p. 3.

The next nuclear crisis was the 22-28 October 1962 Cuban missile crisis, an event that brought the world to the brink of a superpower nuclear exchange. As Dean Rusk allegedly said, "the two superpowers were eyeball-to-eyeball when the other fellow [the Soviet Union] blinked."[45] This superpower test of wills caused many U.S. policy makers to rethink their policies.

World events were more orderly in the next several years and the U.S. government settled into its Cold War-dictated foreign policy. With the avoidance of "World War III" behind him, Kennedy's focus shifted to Southeast Asia. While the Kennedy administration did not ignore the potential harm from nuclear terrorism, it was relegated it to a lesser role.[46] The alarm sounded by Stimson was all but silent. The menace of nuclear terrorism was not given serious consideration until the next decade.

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[45] Ibid., p. 33. Parenthetical notation added.

[46] This does not mean that Kennedy ignored the threat of nuclear terrorism completely. His administration, like those before, keyed on the nuclear weapons issue. Moreover, they looked at terrorism from a preventive, and perhaps even a preemptive, perspective, focusing on the need for *counterinsurgency* more than other forms of terrorist-type activity. The reason is simple — the threat and the responsible group were both external. The Office of Public Safety, housed within the Agency for International Development, provided assistance prior to U.S. combat troop commitment.

2. U.S. Policy Shifts to Terrorism

The 1960s was a time of internal turmoil in the U.S. The nation saw the growth of a myriad of militant organizations such as the Revolutionary Action Movement (RAM), the Black Liberation Army (BLA), the Symbionese Liberation Army (SLA), the Black Panthers, the Weather Underground, and the Prairie Fire Organizing Committee, a more radical subgroup of the Weather Underground. All of these groups wanted reform in the U.S. and would unhesitatingly resort to violence to further their goals.[47] As a result, Richard Nixon was the first U.S. president faced with serious internal terrorist threats. Following the outbreak of violence in some of the inner cities, and on U.S. college campuses as a result of the Vietnam War, the Nixon administration answered by

> escalating (its) surveillance, resorting to intimidation, establishing special congressional committees to investigate leftists, using informants and infiltrators, approving FBI controls over all SDS[48] members...[49]

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[47] Yonah Alexander and Robert A. Kilmarx, eds., Political Terrorism and Business: The Threat and Response (New York: Praeger Publishers, 1979), pp. 15-28.

[48] SDS [Students for a Democratic Society] was a non-violent organization that was active on many U.S. college campuses during the student protest movement of the mid-1960s to the mid-1970s. Their goal was to get the U.S. government to remove troops from Vietnam and to get the government to change its policies to

Despite the seriousness of the domestic situation, the Nixon administration did not have to face a nuclear terrorism threat. The Cold War continued and the Nixon administration's policies were consistent with the previous U.S. policy of containment and deterrence.

3. The Specter of Nuclear Terrorism is Born

Gerald Ford's administration was perhaps the first to deal with an internal nuclear threat. According to Dobson and Payne, in 1975 the FBI admitted that it had conducted investigations of "seven letters threatening to explode nuclear bombs in Boston, Des Moines, San Francisco, and Lincoln,

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become more receptive to "the needs of the people." Over the years, the group became more radicalized and was eventually "taken over" by the Weathermen (a.k.a. The Weather People), a group that was more prone to violence. Eventually, this group became known as the Weather Underground, an extremely radical and violent "subgroup" that wanted to overthrow the U.S. government. For detailed information on the transformation of the SDS to the Weathermen (Underground) see Ehud Sprinzak, "The Psychopolitical Formation of Extreme Left Terrorism in Democracy: The Case of the Weathermen," in Walter Reich, ed., The Origins of Terrorism: Psychology, Ideology, Theology, States of Mind (Cambridge: Press Syndicate of the University of Cambridge, 1990) and Richard G. Braungart and Margaret M. Braungart, "From Protest to Terrorism: The Case of the SDS and the Weathermen," in Donatella della Porta, ed., Social Movements and Violence (Greenwich, Conn.: JAI Press Inc., 1992).

[49] Donatella della Porta paraphrasing Braungart and Braungart, "Introduction: On Individual Motivations in Underground Political Organizations," International Social Movement Research, Vol. 4, 1992, p. 15. Parenthetical notation added. The FBI policies extended to the Black Panthers, RAM, the SLA, the BLA, and other radical groups.

Nebraska."[50] The "warnings" turned out to be hoaxes without any group(s) claiming responsibility. These incidents, reported to the Atomic Energy Commission (AEC) by the FBI, precipitated the establishment of the Nuclear Emergency Search Team (NEST), which was under the cognizance of the AEC's Nevada operations office (NV).[51] In late 1974, the NV manager was assigned responsibility for NEST, which was established in early 1975.[52] Exercise scenarios dealing with INDs proved NEST's effectiveness but also indicated that the response time for an East coast operation was unacceptable.[53] In December 1976, officials decided to maintain NEST EAST on

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[50] Dobson and Payne, The Terrorists, p. 135.

[51] Mahlon E. Gates, "The Nuclear Emergency Search Team," in Leventhal and Alexander, Preventing Nuclear Terrorism, pp. 397-8. Mr. Gates served as manager of the AEC's Nevada operations office, NEST's home base. NEST, established by executive order 11490, now falls under the purview of the Department of Energy. It has responsibility for security of special nuclear material (SNM) in the agency's custody; for coordinating search and recovery operations for SNM, weapons or devices; for assisting in identification and deactivation of INDs; and for assisting on radiation problems in the event of detonation of an IND.

[52] Ibid., p. 398. A group of personnel from the Los Alamos and Livermore National Laboratories and the EG&G Company comprised NEST's initial manning. The nucleus for NEST-related activity was eventually established within EG&G supplemented with specific volunteers from Los Alamos, Livermore and Sandia, the three weapons laboratories.

[53] Ibid., p. 399.

a permanent basis.[54] The stage was set again and the nuclear terrorism alarm was gently sounding.

Jimmy Carter was faced with an external, international terrorist threat, albeit a non-nuclear one, and took swift action to subdue it. The Iranian government was accused by nearly every nation of sponsoring international terrorism and harboring terrorists. The Iranian targets were many and the U.S. was no exception.[55] Following the Iranian hostage incident, Carter signed Executive Order 12166 which delegated the authority to deny credit by the Export-Import Bank, normally a presidential prerogative, to the Secretary of State.[56] This was to be done

> where such action would be in the national interest (or) importantly advance United States policy in such areas such as international terrorism, nuclear proliferation, environmental protection . . . .[57]

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[54] Ibid., p. 400.

[55] Livingston, The Terrorism Spectacle, pp. 145-6, postulates that the U.S. was targeted because of the Shah's repressive regime. The Shah's government was bolstered by the SAVAK, a police force that was aided by the Office of Public Safety.

[56] National Archives and Records Administration, "Presidential Proclamations and Executive Orders: Chapter 11 and 12 [Reserved] and Banks and Banking, U.S. History," 01 September 1990. Carter signed this Executive Order on 19 October 1979.

[57] Ibid. On 14 November 1979, Carter signed Executive Order 12170, which blocked all property and interests in property of the Iranian government. A series of executive orders signed on 19 January 1981 were designed to begin normalizing relations with

Carter's deliberative actions set a standard for subsequent administrations.

In its early years, the Carter administration pushed for additional funding to expand NEST's capabilities. This decision came after investigations were completed in two serious incidents that transpired in the latter years of Ford's term. The first incident involved an IND threat against Union Oil Company in Los Angeles in 1975; and the second incident involved an IND threat in Spokane, Washington in 1976.[58] From 1977-1980, Carter's administration was successful in obtaining additional funds for NEST, which were instrumental in maintaining the team's proficiency.[59]

4. Terrorism Again Takes Center Stage

The Reagan and Bush administrations took a political, or perhaps a convenient, hard-line stance against terrorists and terrorism. The U.S. policy was simple. On many occasions Reagan and Bush stated that the United States did not and

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Iran (i.e., Carter "undid" his previous executive orders). Parenthetical notation added.

[58] Gates, "The Nuclear Emergency Search Team," pp. 400-401.

[59] Ibid., p. 401.

would not, negotiate with terrorists.[60] However, this hard-line stance was tempered with "selective" enforcement. Reagan railed against the Libyan government's policies on terrorism and lashed out at Libya's sponsorship of international terrorist activity through their financial and logistics support. The U.S. position with Iraq, however, was much more conciliatory. The State Department removed Iraq from its list of terror sponsoring nations, despite Iraq's known involvement in international terrorism.[61]

The seemingly contradictory Reagan-Bush policies on terrorism caused much consternation among congressional and executive branch policy makers. It was difficult to rationalize the paradoxical nature of the U.S. antiterrorism policy. Some media reports accused Reagan and Bush of inventing a crisis and then formatting a policy to fit what they wanted to implement, while other reports claimed Reagan and Bush were merely redefining a loosely defined term in order to

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[60] This policy was more political posturing for the American public than it was a firm policy. In actuality, the statements meant that the United States would not *directly* negotiate with terrorists; a third party would be used.

[61] Livingston, p. 135. This policy required the Reagan and Bush administrations to ignore continued Iraqi involvement in terrorism throughout the 1980s, which was not an effortless task. This policy continued until immediately before the Persian Gulf War.

obviate potential problems. Whatever the reason, the *new* definition and the resulting policy it created had deleterious effects for the United States in 1981. When statistics for terrorist acts were recalculated the incidence of terrorism was doubled from previous assessments during the past twelve years.[62] The terrorist problem was "worse" than what had been previously suspected. Steven Livingston asserts that

> the Reagan administration sought to create a crisis atmosphere regarding terrorism ... (because the) crisis is an important component of political spectacle (which helps to) rationalize policies.[63]

To that end, Secretary of State Alexander Haig's first public announcement was that international terrorism would replace human rights as the central foreign policy concern of the United States. Moreover, Anthony Quainton, director of the State Department's Office for Combating Terrorism, stated there was more interest in the terrorism issue than there had been in the past. This posture produced a rift within the administration though. CIA analysts were "encouraged to expand the definition of terrorism to include 'all acts of violence intended to impact on a wider audience than the

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[62] Ibid., p. 136.

[63] Ibid., p. 136-7. Parenthetical notations added.

victims of violence,'" which according to some analysts would include the shooting of Reagan by John Hinckley.[64]

5. Terrorists Strike *Inside* the United States

President Clinton inherited the Reagan-Bush terrorism legacy. In just over two years, the Clinton presidency has faced several terrorist incidents — both inside and outside the United States. Like his predecessors, he adopted the same policy regarding the terrorists. The Clinton administration's antiterrorism policies concentrated on international terrorism, not only because of its foreign policy implications, but because of its domestic political overtones. Even before the Oklahoma City bombing, the administration pushed for legislation to:

1) implement a new treaty to make plastic explosives detectable at airports,[65]

2) increase authority to issue executive orders blocking funds used by terrorists groups,

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[64] Ibid., p. 137.

[65] Explosives like Semtex, which was linked to the WTC bombing, are virtually undetectable at airports. An international treaty signed by the U.S. would force U.S. manufacturers to make these explosives detectable, known as "tagging," but there is no U.S. law enforcing the treaty. This issue is being debated on Capitol Hill as part of the antiterrorist packages of both houses of Congress.

3) use the interest of frozen funds to combat terrorists,

4) improve the authority to wiretap suspected terrorists,

5) extend the jurisdiction of federal courts to prosecute terrorists, and

6) speedily deport foreign aliens involved in terrorists activities.[66]

Following the April 1995 bombing in Oklahoma City, the worst terrorist incident in the United States, Clinton's administration renewed its call for tougher measures to combat terrorism.[67]

B. NUCLEAR TERRORISM DEFINED

There has been much discussion recently about the possible occurrence of terrorism in the United States, nuclear terrorism in particular. It is the latter that is the most disconcerting. Two competing views concerning the likelihood of nuclear terrorism were discussed in Chapter I. To better understand nuclear terrorism, though, an examination and an understanding of terrorism is needed.

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[66] Lee Michael Katz, "Terrorism Package Ready For Congress," USA Today, 30 January 1995.

[67] More Americans have died as a result of terrorist attacks on U.S. soil during the Clinton administration than during any other president's term in this century.

1. The "Terrorism" Debate

The word "terrorism" conjures up negative images. It is a word that is over-used by the media in reporting virtually *any* violent and organized attack on anything or anyone, anywhere at anytime. Moreover, it has evolved into a highly politicized word, thereby becoming a pejorative term loosely used to define any acts that appear wanton and reckless. There is no clear definition of "terrorism" on which all can agree.[68]

In its simplest form, "terrorism is what the bad guys do."[69] Ted Robert Gurr, quoting Thomas Perry Thorton, says:

> 'terror is a symbolic act designed to influence political behavior by extra-normal means, entailing the use or threat of violence.'[70]

There are several issues that any definition of "terrorism" must include. This "common denominator" will allow for the

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[68] See Jeffrey Ian Ross and Ted Robert Gurr, "Why Terrorism Subsides," in Walter Reich, ed., Origins of Terrorism (Cambridge: Press Syndicate of the University of Cambridge, 1990) for a discussion of the "definition of terrorism."

[69] Jenkins, "The Study of Terrorism," in Yonah Alexander and John M. Gleason, eds., Behavioral and Quantitative Perspectives on Terrorism (New York: Pergamon Policy Studies, 1979), p. 3. Jenkins originally presented this material to the Joint National Meeting of the Operations Research Society of America and the Institute for the Management Sciences.

[70] Ted Robert Gurr, "Empirical Research on Political Terrorism," in Robert Slater and Michael Stohl, eds., Current Perspectives on International Terrorism (New York: St. Martin's Press, 1988), p. 115.

analysis of the optimistic and pessimistic views of terrorism. An act is considered terrorist if:

1) it is the threat of or the premeditated use of violence;

2) it is designed to cause fear and panic;

3) it is meant to influence an audience;

4) it is directed at largely symbolic targets, which include people; and

5) it is conducted by subnational groups, with or without outside assistance.[71]

a. Types of Terrorism

Using these criteria allows for a brief discussion of the major types of terrorism. It is imperative that a distinction between them in order to lead to a better understanding of the nuclear terrorism problem. The types of terrorism are:

1) domestic terrorism — conducted by national or sub-national groups within the borders of their state;

2) international terrorism[72] — conducted by national or subnational groups across borders or on international targets within the state; and

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[71] These aspects of terrorist acts are a compilation of common factors of terrorism expressed by Gurr, Crenshaw, Jenkins, Nathan Leites, della Porta, Oots, and other scholars.

3) state terrorism — conducted by the state within its own borders.

This paper focuses on international and domestic terrorism.

b. Types of Terrorist Groups

It is indisputable that there are dissimilar types of terrorist groups and that these groups engage in different types of terrorism. Oots, citing Ariel Merari's 1978 work, classifies terrorists in four groups:

1) domestically-based xenofighters [domestic base and foreign target];

2) foreign-based homofighters [foreign base, domestic target];

3) foreign-based xenofighters [foreign base and foreign target]; and

4) domestically-based homofighters [domestic base and domestic target].[73]

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[72] Some scholars make a distinction between *transnational* and *international* terrorism on the basis of target selection. For them, the former is terrorism directed against *international* targets within the confines of their home theater of operations; the latter is terrorism regardless of the target type conducted across the borders of states. This paper has opted for the more simplified interpretation of *international* terrorism.

[73] Oots, A Political Organizational Approach to Transnational Terrorism, pp. 20-21. (A list of terrorist groups which are anti-U.S. and could engage in nuclear terrorism is found at Appendix B.)

For purposes of present discussion, this paper is concerned with the latter three groups since they are the types of groups that engage in international and domestic terrorism.

c. *What Terrorism Is*

The definition of "terrorism," will be based upon accepted works in the field which were cited earlier in this section. The term "nuclear," which includes *all* radioactive material, must receive similar, albeit less extensive, treatment. To truly understand the problem of nuclear terrorism, one must understand the terms by which the problem will be defined.

Terrorism is more than "what the bad guys do." According to Robert M. Fearey, "modern" terrorism dates back to the French Reign of Terror of the 1790s.[74] Others argue that it began with the predecessors to the Bolsheviks in the 1880s.[75] Still others claim that terrorism is as old as mankind and is

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[74] Robert A Fearey, "Introduction to International Terrorism," quoted by Marius H. Livingston, Lee Bruce Kress, and Marie G. Wanek, eds., International Terrorism in the Contemporary World (Westport, Conn.: Greenwood Press, 1978), p. 26. Mr. Fearey was a special assistant to the U.S. Secretary of State and Coordinator for Combating Terrorism between 1971-75.

[75] For an excellent treatise on terrorism in pre-communist Russia see Norman M. Naimark, "Terrorism and the Fall of Imperial Russia," Terrorism, Vol. 2, No. 2, Summer 1990.

now receiving attention because of its pervasive nature.[76] It was nearly twenty years ago when Bell stated:

> . . . terror has become trendy, not only in the number of spectacular and often gruesome incidents but also as a subject for academic analysis and a concern for policy makers.[77]

Bell's statement has a rather omniscient quality. Today, there are many works on terrorism, some of which discuss the possibilities of nuclear terrorism. There is an international journal entitled Terrorism. The topic is covered in all forms of the mass media. Furthermore, terrorism is discussed in numerous federal documents as a threat to U.S. national security.[78] Since the government considers terrorism to be a

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[76] Some people argue that terrorism is an ancient practice defined merely as the slaughter of innocents. As Bell states in "Terror: An Overview," "violence often the most unsavory kinds has long been with us, beginning with Cain and Abel." For a detailed discussion of the Cain and Abel incident see The New American Bible (Genesis 4:1-16, pp. 5-6). Assassination has long been an "accepted" form of terrorism in virtually all definitions. Therefore, those who argue that the first act of terrorism involved Cain and Abel have a basis on which to form their argument.

[77] Livingston, et al., p. 36.

[78] The federal government has several departments that deal with terrorism. To better understand this problem, see Public Report of the Vice President's Task Force on Combatting (sic) Terrorism (Washington: Government Printing Office, 1986). The report gives some good recommendations on what to do *after* a terrorist attack, however offers little substantive advice on what to do *before* an attack. The problem arises when these various departments downplay terrorism's importance. Two key federal departments have done so: the Department of Defense in its National Military Strategy (p. 9) and the executive branch in its National Security Strategy (pp. 9-10). Each has paired the

national security threat, it is practicable to use its definition of "terrorism," which meets the criteria discussed earlier.

According to the U.S. Department of State, the definition of "terrorism" is:

> premeditated, politically motivated violence perpetrated against noncombatant[79] targets by subnational groups or clandestine agents, usually intended to influence an audience.[80]

This definition has been used by the U.S. government for statistical and analytical purposes since 1983.[81]

2. Nuclear Terrorism: Definition and Types

The term "nuclear," as used in this paper, will be used to discuss any nuclear or radioactive material, whether that material is from a nuclear power facility, a nuclear material

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discussion of terrorism with drug trafficking and other mission areas of the military and federal law enforcement agencies.

[79] The State Department defines *noncombatants* as "civilians and military personnel who at the time of the (terrorist) incident are unarmed and/or not on duty." This term is essential in their definition since it amplifies terrorism's role in U.S. foreign policy. Furthermore, the State Department "assists" foreign governments in "training" their anti-terrorist forces.

[80] U.S. Department of State, p. iv. Title 22 of the United States Code, Section 2656f(a) requires the State Department to provide Congress a complete report on terrorism for countries that meet certain criteria contained within the statute. Furthermore, the State Department definition is in contained in the statute's Section 2656f(d), which makes this definition a practicable choice. This definition differs slightly than that which was used by the Reagan administration in its first years in office.

[81] Ibid., p. iv.

storage facility, a nuclear weapon, or any other source where nuclear or radioactive material is located. Therefore, given the definitions above, "nuclear terrorism," as used in this paper, will focus on any intentional release, discharge, or scattering of any nuclear or radioactive material — regardless of the source of that material. It can be conducted through the use of an IND, an RDD, an attack on a nuclear reactor[82], or an attack on a nuclear facility. Furthermore, nuclear terrorism can also be performed by any of the various types of worldwide (or domestic) terrorist organizations, previously discussed.

Understanding terrorism and the terrorist mindset is an important endeavor. However, understanding the involvement of any type of nuclear material in any terrorist action is an even more important because it has not received adequate attention. The essential elements of nuclear terrorism are the

[82] International Atomic Energy Agency (IAEA), Nuclear Power Reactors in the World, 1993 (Vienna: IAEA, 1994), pp. 31-35. There are 109 operational commercial nuclear power facilities in the United States; seventy-two are pressurized water reactors (PWRs) and thirty-seven are boiling water reactors (BWRs). This accounts for nearly twenty-four percent of the world's nuclear power facilities. (A complete listing of these facilities is found at Appendix A.)

same as for "conventional" terrorism except for the nuclear element. As R. William Mengel states:

> Nuclear terrorism encompasses those acts which would normally be considered terroristic, but which include a nuclear element as the principal means of violence.[83]

The aspect of any type of terrorism alarms and sickens even the most hardened individual. Often terrorists' actions are exacerbated by the media frenzy that ensues after an attack. This would be more true following a nuclear terrorist attack.[84] Terrorism, by virtue of the media coverage it receives, has become a perverse spectator sport.

C. THE INFLUENCE OF THE "FOURTH ESTATE"

The news media plays an important role in American society. In its various forms, the media has exposed some of the dangers involved in the nuclear industry forcing a debate on the public's uneasiness with nuclear power's safety. Often, reorganization of the nuclear power industry's operations have been dictated by changes in federal standards.[85] In this

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[83] Mengel quoted by Livingston, et al., p. 403. Chapter IV discusses motivational aspects of nuclear terrorism.

[84] DiPaolo, "Nuclear Terrorism," pp. 21-22.

[85] See David Dinsmore Comey, "The Incident at Brown's Ferry," Philip Herrera, "The Dawning of the Nuclear Age," and John Gofman and Arthur Tamplin, "Poisoned Power," in Faulkner, The

instance the media, acting responsibly, served the public good. Another potential good coming out of wide media coverage of terrorist acts is the possibility that other groups *may* be discouraged from acting because of the publicized arrest and swift justice in a previous attack. Notwithstanding this fact, the media has occasionally acted in an irresponsible manner helping to spread rumors, fear, and panic.[86]

A delicate balance exists between the media's First Amendment rights, and the safety of the public in any terrorist incident, especially one involving a nuclear element. This balance has existed for decades, and will exist for decades to come.[87] It would not be prudent, but the government could

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Silent Bomb; also Richard E. Webb, The Accident Hazards of Nuclear Power Plants (Amherst, Mass.: University of Massachusetts Press, 1976).

[86] See John G. Fuller, "We Almost Lost Detroit," David Pesonen, "How Safe is Diablo Canyon?" and Howard Kohn, "Malignant Giant: The Nuclear Industry's Terrible Power and How It Silenced Karen Silkwood," in Faulkner, The Silent Bomb. These reports are emotionally charged articles written by proponents of disbanding the U.S. nuclear power industry.

[87] Robert Kupperman and Darrell Trent, Terrorism: Threat, Reality, Response (Stanford, Calif.: Hoover Institution Press, 1979), pp. 340-2. The authors cited a 1977 survey of law enforcement officials in which there was a largely negative response to allowing the media full access on the scene of any terrorist activity. Eighteen years later, the Oklahoma City bombing proved the validity of the trepidation expressed by law enforcement. The media's preoccupation with ratings has caused much consternation and debate over the years.

"outlaw" media coverage of certain terrorist activities to eliminate this element, although such an idea is not a practicable one. A possible calamitous side effect of such a policy may cause an escalation in the violence level — either by the terrorists increasing the intensity or the number of their attacks — thereby allowing the terrorists to maintain their "media presence."[88] A relatively obscure organization or group can quickly become well-known following a terrorist attack that receives wide media coverage. This would be more true of a carefully orchestrated nuclear terrorist attack because of the maleficent side effects of the involvement of the nuclear element.

The power of the media to instantly reach millions of people gives some credence to the concern expressed by those who want the media "kept at bay" during terrorist incidents. Events that would be considered "local" news can quickly become worldwide theatrical presentations for the media rather than "news." This coverage, which is occasionally embellished by the media, may serve to glamorize, romanticize, and mythologize the terrorists — in

[88] Ibid., p. 131.

essence, expanding the terrorists' support base and sympathizers. Moreover, the media coverage potentially could incite others to replicate the acts.[89] The media's impact on society *is not* argued. Yonah Alexander discusses the media as follows,

> typical reporting of a terrorist event here in the United States might reach of, say, conservatively, forty million people. What's the chance that it may come to the attention of some borderline psychopath who may be stimulated to take part in some future episode? If we were to consider that just one-tenth of one percent of the audience were borderline psychopaths, that would be forty thousand potential maniacs. If we took one one-thousandth of one percent, we would still have the four that are necessary to carry out a typical terrorist episode.[90]

The numbers reflected above mirror what federal investigators are discovering in the Oklahoma City federal building bombing — approximately three to five people are responsible for the heinous act. Alexander further cites instances of the media's recklessness in reporting on terrorist activity that have led to public endangerment.[91] Sometimes terrorists stage attacks merely for the publicity that these

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[89] Ibid., p. 164.

[90] Alexander, "Terrorism in the Media," in Leventhal and Alexander, Terrorism, p. 164.

[91] Ibid., pp. 165-167.

actions generate.[92] This almost symbiotic relationship between terrorism and the media shows that terrorism is inextricably linked to today's telecommunications capabilities.[93]

It could be argued that news media coverage is tantamount to providing free advertising for the terrorists because "the terror strategy relies on the very communication rather than what is being communicated."[94] This is equally true for "conventional" and nuclear terrorism alike. Noemi Gal-or provides a concise summation of this aspect of the mass media and its relationship with potential nuclear terrorists stating that they:

> rely on the media to communicate and publicize their acts as well as the motives behind these acts. By projecting their cause well beyond those immediately affected by the terrorist act, (the) terrorists use the media to amplify the uncertainty and horror of the act and polarize the people made aware of the act.[95]

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[92] Alexander and Richard Latter discuss this phenomena in Terrorism and the Media: Dilemmas for Government, Journalists, and the Public (McLean, Vir.: Brassey's (U.S.) Inc., 1990).

[93] Kupperman and Trent, pp. 41-42.

[94] Franco Salomone, "Terrorism and the Mass Media," in Cherif M. Bassiouni, ed., International Terrorism and Political Crimes (Springfield, Ill.: Charles C. Thomas Publishers, 1975), p. 43.

[95] Gal-or, International Cooperation to Suppress Terrorism, pp. 6-7. Parenthetical notation added.

III. THE NUCLEAR MENACE

The possibility of terrorists acquiring nuclear weapons or engaging in other forms of nuclear violence is a clear and present, but neglected, global danger.

Alan Cranston[96]

The hazards of nuclear terrorism are similar to the perils associated with nuclear reactor accidents, or incidents at any nuclear facility.[97] Security at some U.S. nuclear facilities, both commercial and federal, is better than at others, but all of the facilities exceed the minimum standard established by the federal government.[98] The main difference between most reactor accidents and most terrorist attacks is that for an accident there is usually warning. Furthermore, there is a disaster preparedness plan in place. There is virtually no warning for most terrorist attacks — and there is no reason to

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[96] Alan Cranston, *Liner Notes*, in Leventhal and Alexander, Preventing Nuclear Terrorism, p. i. Cranston, a former U.S. Senator, has long been a proponent of nuclear disarmament.

[97] DiPaolo, "Nuclear Terrorism," pp. 8-10.

[98] Some would argue that security at some facilities is lax and poses a danger to the public. Jeff Leeds in "U.S. Panel to Upgrade A-Plant Security Draws Fire," Los Angeles Times, 26 July 1994, argues on the poor security conditions at some facilities. Leeds cites a 1993 incident at Three Mile Island. A man drove past the guard post, through the security fences, and crashed through a large steel door. He drove his car approximately 60 feet *inside* a turbine building — only 200 feet from a vital area of the facility. The man evaded guards for four hours before being detained.

assume that there will be warnings in a nuclear terrorist attack. Since the ground-breaking for the first U.S. nuclear power reactor on 06 September 1954,[99] Americans have faced the potential for nuclear disaster.[100] Richard E. Webb writes:

> nuclear power plants present a hazard to the health and safety of the public because they are subject to *accident*, such as an explosion, in which harmful substances called radioactivity could be released to the atmosphere as dust and expose a large population to lethal or injurious radiation.[101]

To allay the public's apprehensions about nuclear power the AEC published information brochures on the "inherent" safety of nuclear power.[102] Additionally, the AEC commissioned studies to demonstrate nuclear power's safety. Beginning with the AEC's 1957 WASH-740 report[103] and its 1973 revision of the

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[99] Philip Herrera, "The Dawning of the Nuclear Age," in Faulkner, The Silent Bomb. The Shippingport, Penna. reactor marked the pinnacle of man's achievement and brought to fruition Dwight Eisenhower's peaceful atom vision. There was also the mixed emotion of the "other side" of harnessing the atom — the nuclear weapon.

[100] A complete listing of U.S. commercial nuclear power reactors is at Appendix A. All are equipped with redundant emergency systems to preclude a disastrous accident.

[101] Webb, The Accident Hazards of Nuclear Power Plants, p. 1.

[102] See John F. Hogerton, Atomic Power Safety (Oak Ridge, Tenn.: U.S. Energy Research and Development Administration (ERDA), 1964) for an example of one of the publications. The ERDA mission was to provide all the essential information about nuclear power operation and its safety features to the public.

[103] Also known as the "Brookhaven Report," the estimates for a major nuclear power reactor accident were 3,400 immediate deaths, more than 43,000 acute injuries, and nearly $7 billion in

same report,[104] debate over the safety of facilities has raged. The best-known AEC report is WASH-1400, also known as the Rasmussen Report. It was initially, and perhaps prematurely, released as a draft in August 1974 because the information in it was deemed critical to the AEC's "safe" oversight of the nuclear power industry.[105] The AEC released the official report in October 1975.[106] Despite its shortcomings, WASH-1400 provided valuable information on nuclear power.

Another important factor of the controversial and often criticized report is that it indicated that some of the accidents could possibly be caused by human error.[107] A logical

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damage. In 1964, the AEC revised the death toll to 45,000 when the industry began building larger reactors.

[104] The death toll remained the same as the 1964 revision of WASH-740, but acute injuries rose to 100,000 and the damage assessment rose to approximately $17 billion.

[105] Webb, The Accident Hazards of Nuclear Power Plants, pp. 80-89. The report is not without controversy. Many of the accident extrapolations in the report indicated numbers lower than those in the modified WASH-740 report and there is no mention of a severe power excursion accident (PEA) in the report. Norman Rasmussen, chairman of the study, intentionally omitted PEAs because he stated these accidents are unlikely to occur and virtually pose no threat to the public's safety. According to Webb, one of the report's conclusions stated that "the chances of being killed as the result of a reactor accident are, for example, 100,000 times less than the chances of being killed in a motor vehicle accident." There is no statistical evidence to support this conclusion.

[106] Ibid., pp. 90-98.

[107] See Webb, The Accident Hazards of Nuclear Power Plants, pp. 187-201 for an excellent summation of major nuclear power reactor accidents and "near accidents" from 1955 through 1975.

extension of this fact can lead to the assumption that some of the simulations cited in WASH-1400 could be intentionally induced by sabotage.[108] This argument has been discussed in the last decade by members of the optimist and pessimist camps.[109] Moreover, the pessimists argue that terrorists can also attack facilities from outside the facility's perimeter.

A. THE U.S. FUTURE IN NUCLEAR TERRORISM?

As discussed earlier, the redundancy of safety features in U.S. reactor designs make insider assistance a vital element for a successful attack at a nuclear facility. Although the threat remains, there is little argument that U.S. nuclear facilities are relatively safe from an insider terrorist threat.[110] However, attacks that do not require terrorists to breach security perimeters can be difficult to prevent.[111]

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[108] See Beres, Apocalypse, pp. 182-186 for a discussion of the likelihood of nuclear reactor sabotage. Beres, citing the 1977 U.S. Congress, Office of Technical Assessment report Nuclear Proliferation and Safeguards, said there were 288 threats or incidents of violence directed at nuclear facilities or offices between 1969 and 1975.

[109] For additional information, see Beres, Apocalypse; Beres, Terrorism and Global Security; Alexander, et al., Terrorism; Alexander, et al., Political Terrorism and Energy; Leventhal, et al., Nuclear Terrorism; and Leventhal, et al., Preventing Nuclear Terrorism.

[110] Webb, The Accident Hazards of Nuclear Power Plants, p. 97.

[111] U.S. military special operations forces have "breached" the security of facilities and reached their goal on a large percentage

1. An Attack At a Storage Facility

U.S. nuclear weapons storage facilities are perhaps the most secure nuclear facilities in the world;[112] however, they are not invulnerable. Let us briefly examine a scenario at a U.S. weapons facility:

> Situated on the northwest outskirts of Amarillo, the Energy Department's Pantex facility has been assembling and disassembling nuclear weapons for more than forty years without incident. There are more than 6,000 pits of highly toxic plutonium from dismantled nuclear weapons stored at the facility. As the U.S. nuclear arsenal decreases, the number of pits stored at Pantex increases. The Energy Department plans to limit the number of pits to no more than 12,000 until further decisions are reached concerning long-term storage of plutonium.[113]
>
> The security procedures at Pantex are equipped to deal with the two worst incidents at the facility: a nuclear accident or an attempt by terrorists to invade the facility and seize some of the pits. One day a small plane approaches the facility enroute to the nearby Amarillo airport. As the plane makes its approach, it veers and crashes into one of the bunkers that house the plutonium pits. A huge fireball shoots skyward and the resulting explosion knocks out the Amarillo airport radar and shatters windows within a one-half mile radius. The entire

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of their mock attacks. However, it is unlikely that any terrorist organization or group of individuals would have the training and discipline to mount a successful campaign against U.S. facilities. Also, see comments in note 98. This leads to the conclusion that an exterior attack would be more likely, and perhaps less risky.

[112] This is the assessment held by optimists and pessimists such as Leventhal, Alexander, Davies, Jenkins, Waltz, and Stolfi.

[113] Thomas W. Lippman, "Texas Bunkers House Nuclear Arms Material," Los Angeles Times, 20 November 1994, p. 34.

> Pantex complex and an area more than one mile around it are contaminated by the radiation — and the radioactive debris continues spreading.

Pantex officials acknowledge some concern about an incident like this and are unsure how to deal with it if it occurs.

2. A Nuclear Reactor Is Targeted

Although secure against most terrorist attacks, nuclear power facilities are more susceptible to terrorism than are storage facilities.[114] The following supports the argument of sabotage against civilian nuclear facilities from outside the facility:

> The twin plants of the Calvert Cliffs nuclear power station are sited in a park-like setting overlooking a river in southern Maryland, 50 miles from Washington. There is a fence surrounding the plant area, and a guard at the gate. But immediately adjacent and slightly above the enclosed area are attractively landscaped parking and picnic facilities provided by the company for tourists who come to see the plants. There are 10 or 15 cars parked on this afternoon, plus a couple of school buses and a somewhat oversized van — apparently outsized to house both people and audio equipment of a roving rock band.
>
> Members of the rock group leave their van and announce they are taking their picnic below the

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[114] Merrill Walters responding to Davies presentation, "Terrorists' Means and Targets," in Leventhal and Alexander, Nuclear Terrorism, p. 68-69. Mr. Walters is the former director of nuclear planning for NATO and served as the chief of the Strategy and Doctrine Department of the Air War College at Maxwell Air Force Base in Montgomery, Ala.

> cliffs to the water's edge. Forty minutes later a tremendous explosion is heard at Solomon's Island, 20 miles down the road. One of the two reactors at the power station is operating at the time of the blast. The explosion is caused by a van bomb powerful enough to disable the control room and trigger a meltdown and a breach of the reactor's containment dome. The station is reduced to rubble. Radiation greater than that produced by a nuclear weapon is released on the countryside, and drifts toward Washington.[115]

This type of attack is not a difficult task for many terrorist groups. It is within their "conventional" tactics and uses one of their basic and most popular weapons — the car (or van) bomb. These types of potential attacks have caused the nuclear industry to reexamine their security requirements.

3. The Security Concern at Nuclear Facilities

Paul Leventhal, president of the nonprofit Nuclear Control Institute — a group that has sought to tighten security at nuclear power facilities since 1984, says, "we'd like to see nuclear power plants better protected." The possibility of external attacks at U.S. nuclear power facilities led the Sandia National Laboratory to examine the use of conventional

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[115] Thomas D. Davies, "What Nuclear Means and Targets Might Terrorists Find Attractive?" in Leventhal and Alexander, Nuclear Terrorism, p. 62. Davies was assistant director of the Arms Control and Disarmament Agency (ACDA), serving under three presidents; and twice chaired the U.S. delegation in arms control treaty negotiations with the (former) Soviet Union.

explosives against reactor vessels. The results of the study are somewhat disturbing. The report indicated that

> unacceptable damage to vital reactor systems could occur from a relatively small charge at close distances and also from larger but reasonable size charges at large setback distances (greater than the protected area for most plants).[116]

An area that is equally troubling is the insider-assisted attack. While not considered as much of a threat as an attack from outside the facility, an attack from within the facility can be as devastating and dangerous. Additionally, insiders pose a dual threat: theft of nuclear materials and sabotage of the facility. Herbert Dixon says that the amount of nuclear material missing from U.S. facilities that "handle highly enriched uranium or plutonium is enough to fabricate hundreds of bombs."[117] Examples of past incidents involving an insider element range from the theft of nuclear material to the destruction of a large quantity of fresh nuclear fuel

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[116] See the references to the Sandia report in the NRC's The Weekly Information Report to the Commissioners, 27 April 1984, Enclosure E. Parenthetical notation was in the original text.

[117] Herbert Dixon, "Physical Security of Nuclear Facilities," in Leventhal and Alexander, Preventing Nuclear Terrorism, p. 212. Dixon served as chairman of the Department of Defense's Physical Security Equipment Action Group and as a member of the Department of Energy's Physical Security and Safeguards Assessment Team.

assemblies and the intentional disabling of the emergency core cooling system and the backup diesel generators of a nuclear power reactor.[118]

Each of these scenarios *could* become reality at many of the U.S. nuclear facilities. For many Americans, the risks involved in safely operating a nuclear reactor or storing any type of nuclear material are not commensurate with the risks of being near any of the facilities if an accident occurs.[119] The disaster preparedness and response plans at U.S. nuclear facilities can combat today's problems, but they may not be able to handle a serious terrorist threat in the future.

4. An RDD "Visits" San Francisco

As discussed in Chapters I and II, an RDD is a low-tech weapon. Today's terrorists can easily build one by placing any type of radioactive material[120] inside a "conventional" car

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[118] Ibid., p. 211.

[119] According to 1994 IAEA statistics 73.2 percent of all reactor outages are caused by equipment failure, 1.8 percent are caused by *human error*, and 19.7 percent are the result of "miscellaneous causes." The remaining 5.3 percent of the outages are caused by refueling, testing, maintenance, training, and licensing and training requirements.

[120] The radioactive material that could be used in an RDD includes plutonium, any uranium, iodine 131, cobalt 60, and polonium 210. This is not meant to be an all-inclusive list. While plutonium and uranium are securely safeguarded, the same cannot be said for the other materials.

or van bomb. The following scenario demonstrates the effectiveness of an RDD from the terrorist's perspective and the potential hazards:

> An innocuous looking delivery truck makes its way through the downtown area enroute to Fisherman's Wharf on the Embarcadero. Nothing seems to be out of place since delivery trucks are a routine occurrence. The truck parks near Pier 41 and the driver leaves taking a dolly loaded with boxes. Four hours later an area approximately four-square city blocks is rocked by an explosion. The city's emergency workers arrive on the scene and begin to render assistance. Several hours pass before the local hospitals notice that some of the injured are showing early signs of radiation sickness. The effects of the explosion are magnified by the terror of the nuclear element in the terrorist attack.

The ramifications of an incident such as this would devastate any community. The situation would be magnified *if* it were carried out with an IND rather than an RDD. Currently, emergency workers throughout the United States are not properly prepared for responding to an IND or an RDD attack. Moreover, no one even has thought to place simple Geiger counters with emergency workers.[121]

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[121] A similar scenario was discussed with Anthony Fainberg, the senior associate and project director of the U.S. Congress's Office of Technical Assessment's International Security and Space Program, on 10 May 1995. Fainberg agreed that no emergency response plan designed for a bombing took into account any nuclear element. Stating that no one that he had talked to had considered such a scenario, he agreed to take the matter under

B. DISASTER PREPAREDNESS AND RESPONSE

As a result of the Nuclear Regulatory Commission's (NRC) earlier reports, public and political pressure, and the incident at Three Mile Island,[122] a reexamination of the assessment of the dangers of nuclear facilities was needed. Even federally-operated nuclear facilities are not without incident and have been investigated.[123] The NRC, after developing several new studies on the risks of severe reactor accidents, published the results for the widest public and scientific review. Specifically, the NRC Source Term Reassessment, known as

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advisement. Fainberg also felt an RDD incident was a serious concern, especially after the Oklahoma City bombing.

[122] See President's Commission on the Accident at Three Mile Island, The Accident at Three Mile Island: Emergency Preparedness, Emergency Response (Washington: Government Printing Office, 1979) for information on events before the mishap, disaster preparedness and response, and lessons learned. The Three Mile Island incident was classified as a *Class 9* accident, which is an accident at a nuclear power plant and the designed safety features *do not* work as planned.

[123] For incidents at nuclear weapons facilities that have been investigated by the federal government see U.S. Congress, Environmental Crimes at DOE's Nuclear Weapons Facilities, Hearing before the Subcommittee on Transportation and Hazardous Materials of the House Committee on Energy and Commerce, 101st Cong., 1st sess., 05 October 1989 (Washington: Government Printing Office, 1989). The report discusses the problems at three of DOE's civilian-contracted facilities: the Monsanto-operated Mound Plant in Ohio, which was a Manhattan Project facility; Rockwell Industries' Rocky Flats in Colorado; and Westinghouse's Feed Materials Production Center in Ohio. The hearings were the result of the public's outcry because these facilities were allegedly ignoring federal environmental laws.

NUREG-0956, looked at commercial facilities and imposed full-scale "accidents" to demonstrate the ability of the facilities' personnel to react to varying situations.[124] This type of program has dramatically improved the industry's basic ability to "protect the health and safety of the general public."[125] Most licensees, however,

> could improve their emergency preparedness programme in a number of areas. The tabulation of findings indicates that technical expertise is the area most in need of improvement. The technical expertise deficiencies focus primarily on personnel training. In addition, there exists a significant number of deficiencies that relate to equipment operation, equipment malfunction, and equipment calibration.[126]

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[124] M. T. Jamgochian, "Regulatory Aspects of Emergency Planning" (IAEA-SM-280/55), in International Atomic Energy Agency (IAEA), Emergency Planning and Preparedness for Nuclear Facilities (Vienna: IAEA, 1986), p. 523.

[125] Ibid., p. 525.

[126] Ibid., p. 526.

IV. WHY NUCLEAR TERRORISM?

The possibility of malevolent use of nuclear materials is a problem that has long occupied a backburner as governments occupy themselves with seemingly more pressing problems. (We need to) look at the risks of terrorists turning to nuclear violence . . .

Morris K. Udall[127]

For terrorists to be effective, they must infuse meaning into their actions — actions that the public perceives as indiscriminate, heinous, frightening, and repulsive. These are precisely the reactions that the terrorists want to achieve; for the public's fear and, to some extent, its loathing are the terrorist's ultimate goal. Any nuclear terrorist attack would accentuate these emotions causing widespread fear and panic. To worsen matters the dangers from the expected radioactivity would further intensify the public's reaction.[128] Assuredly, this would create a public outcry calling for reform.

U.S. expertise in counter-terrorism has grown; so too has the terrorists' ability to analyze and assess their potential

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[127] Morris K. Udall, *Liner Notes*, in Leventhal and Alexander, Preventing Nuclear Terrorism, p. ii. Udall is a former member of the House and chairman of the House committee on interior and insular affairs. Parenthetical notation added.

[128] DiPaolo, "Nuclear Terrorism," p. 9-10.

targets.[129] Alfred R. Louch sees terrorists as an enigma resulting from their divorce from the larger society. He describes them collectively this way:

> They are, in short, fanatics and fanatics are not part of the good society. They are the effluvia of social unrest, ambition, frustration, and hatred. Even if we allowed that only through fanaticism are great social objectives ever attained, we would still be repelled by the fanatic.[130]

As discussed in Chapter II, there are two divergent opinions on nuclear terrorism. The members of the optimistic camp, while not supporting the idea of nuclear terrorism fully, frame their argument in the nuclear weapons domain — a familiar environment in which they normally operate. For the optimists, terrorists may want to join the "nuclear club," often perceived as the exclusive dominion of the world's leading powers, to provide a false sense of legitimacy.[131] The

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[129] See Kupperman, "United States Becoming Target for Terror Forays," Beres, Apocalypse, Bell, A Time of Terror, and Leventhal and Alexander, Preventing Nuclear Terrorism for further discussions on this topic.

[130] Alfred R. Louch, "Terrorism: The Immorality of Belief," in David C. Rapoport and Yonah Alexander, eds., The Morality of Terrorism: Religious and Secular Justifications (New York: Columbia University Press, 1989), p. 9. Louch is chairman of the Philosophy Department at the Claremont Graduate School.

[131] Legitimacy — or using the words of the optimists and those in the nonproliferation regime, *prestige* — is a major concern for terrorists organizations. For some terrorist organizations, a strike against the United States is a blow against expansionism, imperialism, and economic exploitation.

pessimists, on the other hand, might simply reply "because it is there" — and because terrorists have a propensity to escalate the violence. The demise of bipolarity created an unstable world in which some form of nuclear terrorism is more likely than in the past. Each group, however, shares some common ground — that is that the technology to embark on nuclear terrorism is present. The questions of the motivational considerations are the difference between the two groups. The optimists state that terrorists would lose more than they would gain through nuclear terrorism; the pessimists believe that, given the terrorists' propensity for violence (and the escalation of it), nuclear terrorism is the next logical step for terrorists.

A. THE "LEGITIMACY" OF TERRORISM

Terrorists have an unalterable awareness of the disorienting nature that their business causes and the effect it has on society. There is a fine line between the terrorist disrupting the government's role in society (i.e., to show the public that the government is ineffective in fulfilling its security function) and the potential to isolate the citizens from

their social order. Terrorists tend to understand this contingency and operate within its confines.

If any terrorist activity causes a government's policies to become too repressive (i.e., the laws infringe upon the rights of law-abiding citizens) then the potential for the government to alienate the public increases.[132] While such policies may also work against the terrorists' support base, this tenuous situation for the government can provide a "victory," albeit a small one, for the terrorists. This small victory may be larger in the terrorist's mind than it is in actuality. The optimists tend to underestimate the threats of nuclear terrorism, while the pessimists, to a certain extent, overestimate them.

Besides the mass media attention and manipulation, which was discussed in Chapter II, and disrupting the government's role in society, terrorists often will use violence to solidify their sense of legitimacy. This would be more true of the nuclear terrorist, who like his "conventional"

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[132] This was evidenced one month after the worst terrorist attack in U.S. history. The antiterrorist policies that the Clinton administration favored are now coming under fire as being too restrictive on the public at large. Additionally, the alleged catalyst of the attack — the 1993 Waco incident with the Branch Davidians — is being attacked from inside and outside the government as one example of "government gone awry."

counterpart is a non-state actor not bound by the same rules as the rest of the world. Yonah Alexander, quoting Weisband and Roguly, succinctly observed that for terrorists:

> the path to legitimacy is through one's reputation for resilience, for self-sacrifice and daring, for brutality, and, above all, for effective discipline over words and actions. The terrorist is his own torch and bomb; he ignites the flames of national passion and, if possible, of political sympathy, and he does it by violating universal human sensibilities. It is the credibility that violence produces, whenever (it) appalls, that renders terrorism horrifying yet powerful and, if successful, self-legitimating.[133]

The optimists attempt to frame this hypothesis strictly within the nuclear realm, which creates an enigma. The problem goes beyond the scope of current "illicit nation-to-nation" safeguards and international agreements which deal with the states as the primary actors.[134] Furthermore, the optimist view ignores the motivational considerations of terrorists "going nuclear." The pessimist perspective also faces similar difficulties although they envision terrorists who could possess the motivation to carry out an attack with WMD.

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[133] Alexander, "Terrorism, the Media, and the Police," in Kupperman and Trent, in the *Selected Readings* section, p. 335.

[134] Richard H. Shultz, Jr. and Stephen Sloan, eds., Responding to the Terrorist Threat: Security and Crisis Management (New York: Pergammon Press, 1980), pp. 145-148.

With many of the effects of any type of nuclear attack being delayed, why would terrorists want to undertake such a venture? Why would terrorists take the risk of alienating supporters through such intense indiscretion? Why would terrorists expose themselves to the inherent dangers of entering the nuclear arena? These are the questions often raised by the optimists to indicate "proof" as to why terrorists *would not* use nuclear terrorism. The optimists do not or cannot see nuclear terrorism from the perspective of a terrorist. For them there are too many uncertainties. Their counterparts respond to the same questions by saying that "terrorism often becomes a useful tool precisely in the tolerant liberal States, which are vulnerable to it."[135] Manfred Funke observed this idiosyncrasy when he studied the problem on the "macro-social" level of analysis.[136] Moreover, the pessimists better understand that the terrorist uses a different set of

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[135] Noemi Gal-or, International Cooperation to Suppress Terrorism (New York: St. Martin's Press, 1985), p. 14. Gal-or was quoting the work of Jorge Nef, "Some Thoughts on Contemporary Terrorism: Domestic and International Perspectives," in John Carson, ed., Proceedings of a Colloquium (Toronto: The Atlantic Council of Canada, 1978).

[136] For further discussion see Manfred Funke, "Terrorismus: Ermittlungsversuch zu einer Herausforderung," Terrorismus: Untersuchungen zur Strategie und Struktur revolutionaerer Gewaltpolitik (Bonn: Bundeszentrale fuer politische Bilding, 1977).

values when compared to the rest of society's; and are closer to a more accurate assessment of the terrorists' motivations.

B. *GEMEINSCHAFTSUNFAEHIGKEIT*[137]

No one will argue that the physical consequences of major acts of terrorism are not much different from any large industrial accidents or natural disasters — all of them cause a degree of societal dysfunction. There are, however, far greater political consequences for terrorist acts than there are for natural disasters and major industrial accidents.[138]

No one wants to believe that the United States is vulnerable to any type of nuclear attack; and no one wants to believe that *any* group or individual would attempt nuclear terrorism. However, no one knows for certain what weapons terrorists will use, or when or where terrorists are going to attack. This point is echoed by Charles P. Monroe,

> the terrorist effectively uses the element of surprise. He will strike where and when he is unexpected. Any person or place becomes a potential target.[139]

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[137] Walter Lacquer in the *Preface* in Kupperman and Trent, p. xvi. Translated the term means "the inability to make common cause with others."

[138] Kupperman and Trent, p. xix.

[139] Monroe, "Addressing Terrorism in the United States," in Wolfgang, ed., The Annals Vol. 463, September 1982, p. 142.

The likelihood of terrorist activity entering the nuclear realm is becoming a U.S. domestic and international policy ordeal.

Indiscriminate attacks are difficult to understand especially for those who do not, or will not, use the same operational framework as the terrorist. Kupperman and Trent submit that the arguments against the plausibility of terrorist use of weapons of mass destruction (WMD) may not be as compelling in the long-term as was previously believed. They cite three reasons:

1) even the best-protected nuclear installations are subject to attack;

2) nations have demonstrated their willingness to use biological or chemical agents; and

3) even though terrorist use of WMDs may affect supporters and worldwide opinion, recent trends make this argument less cogent.[140]

No amount of theorizing can decide whether incidents of mass destruction will occur. As Kupperman and Trent assert:

> One tenet is obvious: Even if mass-destruction terrorism were as highly improbable as many believe, its potential consequences could not be ignored. We must try to understand the physical as

[140] Kupperman and Trent, pp. 50-51.

well as the more complex socioeconomic effects of heightened acts of terrorism.[141]

With the March and April 1995 nerve-gas attacks in Japan, the taboo of WMDs was broken.[142] The highly publicized nature of such acts increases the likelihood that duplicate attacks or, even worse, an escalation of these types of attacks may be the next step for terrorists.[143]

Any terrorist attack, particularly one involving nuclear or radioactive elements, normally leads to more questions on terrorists and terrorism: Why does an individual join a terrorist group? What makes these people stay in the group? What effect, if any, do the group's actions have on the individual's behavior? How does the individual or group

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[141] Ibid., p. 52.

[142] The Japanese Aum Shinri-Kyo [Divine Truth] group may have been the first non-military, non-state-sanctioned organization to employ WMDs successfully. The religious group conducted a gas attack in the crowded Tokyo subway in March 1995; hundreds of Japanese commuters were injured and ten were killed by the gassing. In late April 1995, the Aum Shinri-Kyo group conducted another gas attack. This one was in the Yokohama subway. More than 500 people were sickened by the gas, 21 were hospitalized, but no one died. In May 1995, Japanese police thwarted another attack, receiving "assistance" from a defective dispersal device.

[143] The Associated Press reported on 27 May 1995 that an Ohio man, who regularly chastised the U.S. government, was arrested after three vials of a bacterium that causes bubonic plague were found in the trunk of his car. Additionally, blasting caps, detonating devices and explosives were found in the man's house.

operate within society? Wilhelm Kasch has explained terrorism as

> the urge to destroy — the self and others — born out of radical despair, a new form of a "disease until death" (shades of Kierkegaarde and Heidegger) which manifests itself by way of the inability to make common cause with others, the loss of the capacity to understand reality, aimlessness and even the deterioration in the quality of language used.[144]

The personalities of individual terrorists often differ. There may be political, religious, or even psychopathic motivations for seeking membership.[145] Each terrorist group has its own set of criteria for membership and to the individual terrorist *the cause* is enormously important, even if it requires the individual to engage in terrorism with a nuclear element.

C. TERRORISM AND THE INDIVIDUAL

Today's terrorists could be considered as the likely "descendants" of the eighteenth and the nineteenth century

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[144] Kupperman and Trent, pp. xv-xvi. Kasch, a German professor of theology, has studied the religious aspects of terrorism in Germany. He was particularly interested in what he termed a form of "methodological atheism" (i.e., terrorists as people living within a [their] society without God. For further details see H. Geissler, ed., Der Weg in die Gewalt (Munich: Olzog, 1978).

[145] Lawrence Zelic Freedman, "Why Does Terrorism Terrorize?" in Rapoport and Alexander, p. 17. Freedman is a medical doctor at the Institute of Social and Behavioral Pathology at the University of Chicago.

revolutionaries — perhaps the first "modern terrorists." In their Revolutionary Catechism, written in 1869, Sergei Nechayev and Mikhail Bakunin wrote:

> the revolutionary is a dedicated man. He has no personal inclination, no business affairs, no emotions, no attachments, no property, and no name. Everything in him is subordinated towards a single exclusive attachment, a single thought, and a single question — the revolution.[146]

For many terrorists today the revolution has been supplanted by "the cause" but their intensity to "fight for it" at all costs mirrors the desire of their predecessors. To the casual observer a terrorist's motives are mistakenly seen as an illogical fanaticism. Nuclear and "conventional" terrorism are not "a *sui generis* plague that comes from nowhere, nor an inexplicable, random strike against humanity," and terrorism is not the product of mentally deranged persons.[147] Its purpose often eludes those who are not familiar with terrorism, especially the optimist coterie. For the optimist, any nuclear terrorist attack seems illogical. Stolfi states,

> I think people are going to find that superterrorist incidents are technically more difficult to carry out

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[146] Ibid., p. 18.

[147] Sprinzak, "The Psychopolitical Formation of Extreme Left Terrorism in a Democracy," p. 78. Parenthetical notation added.

than one would think. There is also a strong possibility that they will be self-defeating.[148]

On the other end of the nuclear terrorism continuum are the pessimists, those who believe in the inevitability of a nuclear terrorist attack. It is not a matter of where the attack will occur, but *when* it will occur and in which form. For them, "terrorism, and particularly nuclear terrorism, is preeminently a political issue;"[149] and, as Louch proposes, there is a seemingly moral indifference and moral insensitivity of terrorists.[150] However, what appears to the "non-terrorist" as immoral is indeed moral to the terrorist.[151] Frederick Hacker provides a concise picture of terrorist motivations and the outcome of his actions, specifically with WMDs:

> the innocence of the (potential) victims is indeed irrelevant for the terrorist, but then he feels that

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[148] Stolfi, "Controlling International Terrorism," p. 83. Stolfi includes all forms of WMD terrorism — such as attacks on liquid natural gas container ships, energy facilities, electric power substations, and oil refineries — in his "superterrorist" target collective.

[149] Beres, "Preventing Nuclear Terrorism: Responses to Terrorist Grievances," in Leventhal and Alexander, eds., Preventing Nuclear Terrorism, p. 146.

[150] Louch, "Terrorism: The Immorality of Belief,"pp. 8-16.

[151] David C. Rapoport, ibid., p. 36, responding to issues raised in the discussion following the presentation of Freedman's "Why Does Terrorism Terrorize?" Rapoport further states that, "the terrorist *is* always attempting to speak a moral language. If we are ever to understand him, let alone deal with him, we *have* to pay attention to what he is saying." Emphasis was in the original text.

> society by its injustice also punishes innocents without even recognizing that society's victims are indeed victimized. The terrorists protest against the conception that it is blind fate and not biased society which is mainly responsible for victimization. The dramatic terrorist act is supposed to show, by its seeming insensitivity, how insensitive and immoral society is. Thus the terrorist means to point to the repressive, unjust immorality of society, which, however, poses as the only possible morality.[152]

The optimists seem mystified by the terrorist's psyche and, as a result, tend to simplify the larger problem. For them, all terrorists, regardless of their group affiliation, are alike. This is a *non sequitur* argument. The differences between groups and the differences between individuals in different terrorist groups are often easily distinguishable.[153]

It is true, though, that differences between individuals within a group become minimized by commonalities resulting from membership in the group. Crenshaw writes that an "outstanding common characteristic (of individual terrorists) is normality," and that terrorism is often the "connecting link

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[152] Frederick Hacker, ibid., p. 33. Hacker, a medical doctor in the Psychiatry and Law Department of the University of Southern California, was responding to Louch during the seminar presentation. Hacker has dealt with terrorists (and criminals) as a hostage negotiator on numerous occasions.

[153] See previous citations of Oots, Post, Crenshaw, and Zawodny.

between dissimilar personalities."[154] This connectivity is the bond that maintains group integrity.

D. THE EFFECT OF GROUP DYNAMICS

Jerrold M. Post challenges Jenkins' assertion that any nuclear terrorist threat could only result from "nuts" and "lunatics." Post believes that anyone capable of nuclear terrorism is *not* a psychotic individual acting alone with a complete disregard for human life. He states that Jenkins' argument about terrorists undertaking nuclear terrorism "revolves around a false dichotomy" (i.e., rational individuals do not engage in irrational acts).[155] Post does struggle with conceptualizing a psychologically normal individual being motivated to carry out an attack with WMDs. He introduces an interesting antilogy:

> An attempt to construct a psychology that would lead an individual to be motivated to carry out an act of nuclear terrorism and have the wherewithal to implement it quickly reveals a paradox. On the one hand, to be motivated to carry out an act of mass destruction suggests profound psychological distortions usually found only in severely disturbed

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[154] Crenshaw in Charles W. Kegley, Jr., ed., International Terrorism: Characteristics, Causes, Controls (New York: St. Martin's Press, 1990), p. 120. Parenthetical notation added.

[155] Jerrold M. Post, "Prospects for Nuclear Terrorism: Psychological Motivations and Constraints," in Leventhal and Alexander, eds., Preventing Nuclear Terrorism, p. 92.

> individuals, such as paranoid psychotics. On the other hand, to implement an act of nuclear terrorism requires not only organizational skills but also the ability to work cooperatively with a small team. To be suffering from major psychopathology, such as paranoid psychotic states, is incompatible with being able to work effectively with a small group.[156]

Post further argues that terrorists are not psychotics driven by

> a desire to destroy, but rather social outcasts who suffer from psychosocial wounds that predispose them to seek affiliation with like-minded individuals. This strong affiliative need, coupled with an incomplete personal identity, provides the foundation for especially powerful group dynamics.[157]

The group becomes a surrogate family and produces conforming group behavior, much like a "normal" family's influence.[158] Braungart and Braungart quote one terrorist's fondness of the group, "they were a family. A big, very tight family. I wanted to be a part of that."[159] They continue that:

> new members perceived themselves to be under close scrutiny or 'test' — another dynamic that is

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[156] Ibid., pp. 92-93.

[157] Ibid., p. 94.

[158] This idea is shared by numerous scholars such as Crenshaw, Post, Gurr, Rapoport, Oots, della Porta, and Zawodny. The group mentality can be a powerful force in any organization as evidenced by Japan's Aum Shinri-Kyo religious cult. Reiko Hatsumi claims that this phenomenon is responsible for the cult's recent actions. In "What Aum Offered," New York Times, 24 May 1995, Hatsumi described the members as well-educated, disenchanted, intelligent young people who despise the breakdown of the Japanese society. Furthermore, the members had a "blind devotion" to the group.

[159] Braungart and Braungart, "From Protest to Terrorism," in della Porta, p. 67.

> characteristic of terrorist groups. This kind of reference group quickly gains control over individual members' perceptions, attitudes, and behavior . . . individual group members tend to relinquish their personal norms for those of the group, they conform to group pressure and roles, they commit distasteful, abhorrent acts because they are told to do so, and are conforming to group norms and practices.[160]

In their search for self-esteem and personal identity, terrorists may seek in the group what they lacked before — a family.[161]

Moreover, the cohesiveness of the group is strengthened by the shared dangers of living outside the law — and outside society. Crenshaw writes, "the group becomes increasingly closed. The greater the pressure from the outside, the more (they) stick together."[162] Post describes the individual's sense of belonging to the group creating and imparting a coherent sense of identity, which becomes idealized and "the standards of the group take over and become the norm.[163] With a nuclear element involved in the terrorist's arsenal, this group mentality can alarm the most cautious observer.

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[160] Ibid., p. 68.

[161] Crenshaw, "The Subjective Reality of the Terrorist," p. 37.

[162] Ibid., p. 36.

[163] Post, "Narcissism and the Charismatic Leader-Follower Relationship," Political Psychology Vol. 7, No. 4, 1986, pp. 685-686.

As Post writes:

> this helps explain the startling degree to which individuals can suspend their own standards and judgment and participate in the most violent of actions when under the sway of the psychology of the group . . . . Even that most basic of human needs — the drive for self-preservation — can be suspended in the service of the group.[164]

The causes of violence are the result of the disenfranchised members of society, the people who are most susceptible to "group think."[165] The optimists do not, or cannot, understand this concept of collective group behavior — or "group think." The pessimists, however, understand it but for the wrong reasons. For them, group size "determines" how capable a group is of carrying out its threat. Large groups should not be the focus for scholars of the nuclear terrorism specter. The importance of any group's rationale, not its size, is of paramount concern when attempting to understand terrorism, especially nuclear terrorism.

1. The Dynamics of Group Size

Too much emphasis is placed on "the size" of terrorist organizations by the pessimists, and to a lesser extent their

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[164] Ibid., p. 686.

[165] Gurr, Why Men Rebel (Princeton, N. J.: Princeton University Press, 1971), pp. 355-359.

counterparts. Large memberships do not necessarily equate to an increase in the number of attacks or even fewer, more violent attacks. The focus should be upon the group's past incidents with massive violence as the determinant factor. Contrary to popular opinion, most terrorist organizations rely on a small cadre of dedicated individuals to carry out the group's mission and goals. This serves to maintain the terrorist group's secrecy and to enable it to operate clandestinely,[166] even though the results of their actions are designed to draw attention. To assure that a potential new member becomes one of the chosen few, the inner circle seeks "to make the newcomer an accomplice of terror, safely *hors la loi* in the eyes of the regime."[167]

In describing the "small primary group" as a focal point in understanding group dynamics, Martha Crenshaw asserts

> the extremism of their goals, their dedication to a provocative and shocking form of violence, and their isolation from society are factors that contribute to another distinctive feature: the extremely small size of most terrorist organizations.[168]

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[166] Paul Wilkinson, "Terrorists Movements," in Alexander, et al., Terrorism, p. 111.

[167] Ibid., p. 113.

[168] Crenshaw, "An Organizational Approach to the Analysis of Political Terrorism," Orbis Vol. 29, No. 3, Fall 1985, p. 466.

J. A. Zawodny, a former revolutionary, stresses the importance of small, familiar groups. He writes that:

> the broader the basis of acquaintance and knowledge of identities among the members, the more efficient are the channels of communication and the better the control exercised by command over membership.[169]

Small, tightly organized, insular groups pose a greater threat in the nuclear domain than a large group. The size of any terrorist group should not be used as an indicator of its inability or its motivation to act. In fact, smaller groups may be more likely to resort to violent behavior than larger groups. There was concern over this hypothesis in the 1970s[170] — primarily regarding nuclear material theft, an IND or RDD attack, and facility sabotage — when Manning Muntzing, former director of the AEC, noted:

> A small band of highly trained, sophisticated terrorists could conceivably take over a nuclear powerplant near a major city and destroy it.[171]

Crenshaw argues that while a group's membership may be large, the operational decisions are often carried out by a few members.

[169] Zawodny, "Internal Catalysts of Violence Within Terrorist Movements," Terrorism Vol. 1, Nos. 3/4, 1978. Zawodny was a member of the Polish Underground Movement's military branch and he has five years of "combat service."

[170] Adam M. Garfinkle, Nuclear Perspectives on Arms Control (New York: Praeger Publishers, 1984), p. 117.

[171] Bell, A Time of Terror, p. 120.

These types of activities, which are often meant to heighten "public awareness" and serve as a "recruiting tool," are classified as "pure terrorism."[172] This is "extreme violence" in terrorist acts for the sake of violence.[173] Nuclear terrorism then would be the ultimate form of violence. To understand this problem of violence for violence's sake requires a new hypothesis. Gurr proposes an interesting analysis of why terrorist groups come to accept extreme means to attain their goals and why they use inordinate amounts and types of violence.

E. NEW GROUPS, OLD GROUPS, AND VIOLENCE

The propensity for violence in terrorism, and the potential for nuclear violence in the United States, is often misunderstood or misinterpreted by the optimists and the pessimists alike. The earlier discussion of group dynamics indicated that individuals will use violence *if* it will enhance the group's position or status. Gurr sees the use of extreme

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[172] Jenkins, "International Terrorism," p. 19-20.

[173] See Johan Galtung, "A Structural Theory of Aggression;" and Harry Eckstein, "A Theory of Stable Democracy;" in Ivo K. Feierabend, Rosalind L. Feierabend, and Tedd Robert Gurr, eds., Anger, Violence, and Politics: Theories and Research (Englewood Cliffs, N. J.: Prentice-Hill, 1972) for additional information on the use of "extreme violence" in terrorism.

violence, which includes the use of WMDs, in new groups entering the world's stage and in old groups trying to recapture "their glory days." He describes these concepts as "radicalization" and "reaction," respectively, and assumes that "violent activism requires a climate of acceptance of unconventional means of political action."[174] These terms are not in the vocabulary of the optimists or the pessimists; nor are these terms in the vocabulary of most policy makers.

1. Radicalization

Gurr describes radicalization as a process whereby the group has not achieved the success or notoriety that it was expecting or hoping for through its actions. These groups are characterized by their "future-oriented objectives"[175] — or a definitive offensive strategy — to attain their goal, which may be redemptive (i.e., an act of revenge for a past injustice at the hands of the government), social, political, or economic. As a result of the (perceived) ineffectiveness of the group, some of the group's members become disenchanted, while others want to find new methods that will have a "greater

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[174] Gurr, "Terrorism in Democracies: Its Social and Political Bases," in Reich, pp. 86-92.

[175] Ibid., p. 89.

impact." Disappointment and disquietitude with the present tactics give way to a new level of violence. This kind of situation is rife with heightened levels of extremism. As Gurr states,

> impatience and frustration provide an expressive motivation (anger) and rationalistic grounds (dramatic episodes of violence elsewhere) that make it likely that some activists will decide to experiment with terror tactics. The choice is made, and justified, as a means to the original ends . . . . And the dynamics of the process are such that the terrorists believe that they enjoy the support of some larger community in revolt[176] . . . . They tend to begin with violent means because they do not think other means are worth using.[177]

This type of action normally results in the group "going underground" to carry out its new, more violent attacks.[178] A group who has gone under is more likely to engage in extremely violent attacks because their "distance from society as a whole" has grown.[179]

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[176] Ibid., p. 87.

[177] Ibid., p. 91.

[178] See Gurr, Sprinzak, Crenshaw, Oots, Post for further details. Each of these authors discusses this aspect of terrorism's dramatic rise in violence, either through an increase in the number of attacks or the intensity, as a phenomenon normally seen in left-wing organizations. A brief discussion of left-wing and right-wing group is in the next section.

[179] This assessment was expressed by Dr. Gordon McCormick in his International Terrorism lectures at the Naval Postgraduate School in Monterey, Calif. from April through June 1995.

2. Reaction

A group in decline[180] is more apt to resort to "reaction" than any other group.[181] Groups in this mode of operation are responding to some form of external forces in order to "rekindle the flame of past glories" or to answer a challenge to their threatened status. These groups are normally right-wing oriented groups[182] and have a defensive strategy.

Often reactionary groups use "coercion, threats, and terroristic violence against supporters and agents"[183] of the government. A distinguishing feature of reactionary groups and their tactics of deadly violence is that it is

> an early response to perceived threat rather than the culmination of a long process of radicalization. A related feature is the existence of a tradition of violent resistance in the affected community, which is more or less quickly activated by externally imposed change . . . . The militants claim to act in defense of a larger community whose integrity and well-being is at risk . . . and often elicit some community support because of latent resentment of ancient injustices and modern inequalities.[184]

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[180] The term "decline" in the terrorist school of thought refers to a group with waning support caused by attrition, governmental intervention, or the changing social environment.

[181] Gurr, "Terrorism in Democracies," p. 89.

[182] Ibid., pp. 90-92.

[183] Ibid., p. 89.

[184] Ibid., p. 90.

3. Left-Wing vs. Right-Wing — Which is Worse?

"Left-wing" and "right-wing" are terms used in any discussion of terrorism or terrorist groups. These terms place terrorist groups on the political spectrum in the hopes that by doing so will lead to a better understanding of the group's motives. Moreover, it is a useful analytical tool since these categorizations allow for some generalizations. Before one can answer whether left-wing groups are worse than their right-wing counterparts, however, one must understand how each group operates. In addition, one must be able to identify whether the threat from either type of group is a near-term or a long-term threat. Thomas Strentz, of the Virginia-based Academy Group — a behavioral sciences think tank regularly used by the FBI, outlined the main differences between left-wing and right-wing terrorist groups.

Strentz classified left-wing group members as educated, urban, philosophical, extremely well-organized, intellectual, disciplined, articulate, and extremely dedicated individuals. These groups are difficult to infiltrate because of the close-knit, cohesive group structure, and because some have developed insular cells of "soldiers." As a rule, left-wing

groups extensively plan their attacks by gathering comprehensive intelligence, developing maps, making detailed timetables, and conducting target assessments.[185] Another distinctive characteristic of a left-wing group is its mixed gender leadership.[186]

Their right-wing counterparts are poorly educated, and tend to be rural, more "religious" (i.e., vehemently believe in strict, literal interpretations of the Bible), unorganized, not very intelligent, inarticulate, and undisciplined individuals. These groups are relatively easy to track and infiltrate because of their "above ground" structure and boisterous nature. Furthermore, the right-wing leadership is exclusively male dominated with females playing a subservient role. Many of their attacks are "planned" with no more than one ore two days of preparations; and some are "planned" immediately before the attack. According to Strentz, this impulsive nature causes these groups to become very paranoid.[187]

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[185] Telephone interview with Dr. Thomas Strentz, 10 May 1995.

[186] Strentz does not agree with Zawodny's evaluation of female leaders being detrimental to group cohesion and order, or its ability to maintain the effectiveness to carry out its mission.

[187] Telephone interview with Dr. Thomas Strentz, 10 May 1995.

Soon after the Oklahoma City bombing Strentz knew that none of the known left-wing groups, Middle Eastern, or Islamic fundamentalist terrorist groups could not be responsible for the attack. He based his assessment on how groups operate, emphasizing that any of the "political capital" that could have been gained from such an attack was lost. Strentz said it was not because of the amount of destruction, but because of the number of deaths, especially the children's. He continued that this is typical of how right-wing groups behave. [188]

As discussed in the previous section, left-wing groups are characterized by their radicalization, whereas right-wing groups have a tendency to be much more reactionary. Each type of group poses a different problem in terms of the threat.

Radical, or left-wing, groups are a greater threat in the long-term. This does not mean that there is no near-term danger from the left-wing but rather, by their nature, the left-wing will be a problem now and into the future. The education, planning, discipline, and dedication demonstrate a resolve to strike when the opportunity best serves the cause.

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[188] Ibid.

The reactionary, or right-wing, groups are a more serious short-term threat. Are the more volatile right-wing groups more inclined to undertake nuclear terrorism? Konrad Kellen, quoting Franco Ferracuti, offers this significant insight:

> The practical implications of (the characterological patterns of right-wing) terrorists are obvious: right-wing terrorism can be very dangerous not only because of its ideology, but because of the general unpredictability of its adherents, and the destructiveness often resulting from their particular psychopathology.[189]

Advancing Strentz's argument into the nuclear realm leads one to some disturbing assumptions. First, left-wing and right-wing groups, both secular and religious, possess the motivations for undertaking any form of nuclear terrorism. Second, left-wing terrorist groups have the requisite technical knowledge, discipline, and organizational skills to conduct all forms of nuclear terrorism. Third, right-wing terrorist groups are less apt to have the requisite skills to undertake the "higher order" forms of nuclear terrorism (e.g., conducting a

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[189] Konrad Kellen, "The Potential for Nuclear Terrorism: A Discussion," in Leventhal and Alexander, Preventing Nuclear Terrorism, pp. 119-120. Parenthetical notation in the original text. Kellen was senior staff member of RAND's behavioral sciences department and is a terrorism expert, having authored numerous articles and RAND studies. Ferracuti is an Italian psychiatrist and terrorism expert.

facility attack or manufacturing an IND). They could, however, conceivably make an RDD. Fourth, left-wing terrorist groups are easier to predict because of their behavior patterns, are less volatile, and are less indiscriminate in their use of violence than are the right-wing terrorist groups. Fifth, the near-term threat from left-wing and right-wing groups is nearly equal. Lastly, the long-term threat from the right-wing is virtually nonexistent, whereas it is clearly a problem from left-wing groups.

V. WHAT DOES THE FUTURE HOLD?

The possibility of nuclear terrorism is a matter of grave national security concern.

Thomas H. Moorer[190]

Terrorism currently appears to be an endemic problem. This observation coupled with the apparent indifference to all forms of violence throughout the world, leaves future prospects for a stable environment in jeopardy — especially if terrorists "go nuclear." The most dangerous and horrific outcome of nuclear terrorism would be for a group "to have an apocalyptic or millenarian cast of ideologues, religious fanatics, or ethnonationalists"[191] who envision themselves in a perpetual state of conflict with the established order. As Gurr noted, the worse the situation is for "people who believe they are right, the greater the likelihood of their resistance" and the more violent they will become.[192]

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[190] Thomas H. Moorer, *Liner Notes*, in Leventhal and Alexander, Preventing Nuclear Terrorism, p. i. Moorer, a retired U.S. Navy admiral, is a former chairman of the Joint Chiefs of Staff.

[191] David Ronfeldt and William Sater, "The Mindset of High-Technology Terrorists: Future Implications from an Historical Analog," in Alexander and Charles K. Ebinger, Political Terrorism and Energy: The Threat and Response (New York: Praeger Publishers, 1982), p. 36.

[192] Gurr, "On the Outcomes of Violent Conflict," in Handbook of Political Conflict (New York: The Free Press, 1980), pp. 252-256.

Some of the explanations for the increased use of terrorism include social, economic, and ethnic grievances; perceived or real repression and injustices; individual and group pathologies *and* ideologies; or, most simply, the fact that *terrorism succeeds*,[193] and "it may be this (possibility of success) that dismays the ordinary citizen."[194] The pathos and *élan* of modern terrorists are closely related to the development of WMDs. Hannah Arendt made an intriguing observation when she noted that today's terrorists are

> the first generation that grew up under the shadow of the atom bomb, and they have inherited . . . a massive intrusion of criminal violence in politics.[195]

Crenshaw states that the terrorist belief system is not only derived from group socialization and "deliberate adoption" of the group's mindset but also from outside forces, particularly the "society they left behind."[196] For obvious reasons, the

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[193] Manus I. Midlarsky, Martha Crenshaw, and Fumihiko Yoshida, "Why Violence Spreads," in International Studies Quarterly Vol. 24 No. 2, 02 June 1980, p. 263.

[194] George H. Quester, "Eliminating the Terrorist Opportunity," in Rapoport and Alexander, The Morality of Terrorism: Religious and Secular Justifications (New York: Columbia University Press, 1989), pp. 325-327.

[195] Hannah Arendt, "Reflections on Violence," Anthology: Selected Essays from Thirty Years of *The New York Review of Books* (New York: NYREV, 1993), p. 41.

[196] Crenshaw, "The Subjective Reality of the Terrorist," pp. 30-32.

exigency of terrorism has justifiably become a major concern of scholars, policy makers, the public.[197]

A. SUMMARY

Nuclear terrorism can no longer be dismissed as technically impossible; in fact, it is likely to become more feasible in the immediate future.[198] No single explanation will suffice when searching for an answer to the "whys" of nuclear terrorism. This is precisely the dilemma created by the singular approach of the two views of nuclear terrorism presented in Chapter I. The optimistic view falls short in explaining nuclear terrorism because of its nuclear weapon perspective. The pessimistic view, with its almost "chicken little, anybody can do it" mentality, creates its own set of problems and also misses the mark. A merging of the two views and a more comprehensive knowledge of terrorism provides the best explanation.

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[197] See Midlarsky et al. for a detailed study of the spread of international terrorism. Examining acts of terrorism from 1968 to 1974 and using Poisson and negative binomial probability models they developed the hypotheses of diffusion and contagion in international terrorism.

[198] John Despres, "Intelligence and the Prevention of Nuclear Terrorism," in Leventhal and Alexander, Preventing Nuclear Terrorism, p. 322. Despres is the former director of the Institute for National Strategic Studies.

At the dawn of the nuclear age, the U.S. policy focused on the destructive power of nuclear weapons, especially if the weapons had fallen into the wrong hands. This ethical approach, which was discussed in Chapter II, "affirmed the deontological and consequentialist considerations of U.S. strategy."[199] This policy was effective for combating the nuclear weapons proliferation threat and prudent given the constraints of the Cold War. It is not an effective policy to deal with today's prospective nuclear terrorists — all of whom are non-state actors. Moralistic hyperbole has failed to curb the use of "conventional" terrorism, therefore, its effectiveness in the area of nuclear terrorism would be more abstruse.

When U.S. policy shifted to terrorism, or more accurately counterinsurgency, the threat to the United States was viewed as minimal because terrorism was an external problem. In retrospect, the U.S. counterinsurgency policy of the Vietnam era was impotent. U.S. policy makers underestimated the seriousness of the threat and could not see the problem outside of the optimist paradigm. Such policies would be

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[199] Gregory S. Kavka, "Nuclear Hostages," in R. G. Frey and Christopher W. Morris, eds., Violence, Terrorism, and Justice (Cambridge: Cambridge University Press, 1991), p. 276-277.

wholly inadequate in attempting to deal with the consequences of nuclear terrorism. Even after a myriad of domestic terrorist groups in the 1960s tore at the fabric of the nation and the nuclear terrorist hoaxes of the 1970s threatened normalcy, the terrorist agendum deviated slightly. It remained inadequate. For the U.S. antiterrorism policy, terrorism meant "it happened elsewhere" or it was a hoax; therefore, terrorism was not given adequate attention — and nuclear terrorism was given even less serious consideration. Furthermore, terrorism was a highly politicized issue and it was bandied about by policy makers. This institutionalized bias remains a problem in the United States despite recent events.[200]

Even at the height of the antiterrorist rhetoric of the Reagan-Bush administrations, the perception persisted that "nuclear terrorism within the United States has been neither a

[200] The current debate in the Congress on the Comprehensive Terrorism Prevention Act of 1995 is indicative of the politicization and shortsightedness of policy makers. Both the House and Senate versions of the legislation are trying to include all possible contingencies for combating terrorism. Assuredly, these tactics will produce a less than effective policy. Moreover, there are amendments that are delaying the legislation's passage that do have anything to do with combating terrorism (e.g., limiting appeals of death row inmates, repealing an assault weapons ban, increasing the statute of limitations under the National Firearms Act, and denying visas to members of groups suspected of terrorism or people from states that sponsor terrorism). Including such items makes the bill convoluted and less effective.

clear nor present danger."[201] In 1985, William Webster, then FBI director, testified before the Senate Judiciary Committee's Security and Terrorism Subcommittee, stating that:

> there has historically only been one instance of a bona fide nuclear threat in this country and it was not much of a threat, but three barrels of low enriched uranium were stolen . . . and the FBI was able to recover those three barrels . . . .[202]

Such myopic thinking harms U.S. antiterrorism policies and efforts, especially in the nuclear arena, and prevents a thorough and effective policy from being developed. This attitude is more prevalent than imaginable[203] and, regrettably it remains a fixture with the current administration.

B. ASSESSMENT

The problems of terrorism are not solely U.S. problems, although the United States has been a victim of it; nor are the solutions to terrorism solely within the purview of U.S. decision makers. Terrorism is a global malady and no matter where the terrorist act takes place its effects are felt worldwide. This is

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[201] Despres, "Intelligence and the Prevention of Nuclear Terrorism," p. 323.

[202] Ibid., p. 323.

[203] One research assistant and one Senate staff official briefly consulted for this paper suggested using Tom Clancy novels and Hollywood movie scripts as sources for material.

particularly true with the possibility of nuclear terrorism. In the nuclear terrorist realm, the United States currently is not capable of coping or handling the aftermath of a nuclear terrorist attack.[204] The current trend toward more spectacular and deadly attacks depicts a disheartening future. Commenting on this, Ra'anan et al. noted that:

> Accordingly, we should be prepared for more terrorist strikes at high consequence targets where both the impact and the number of casualties can be multiplied by the strategic value and inherent characteristics of the target.[205]

Contrary to what the pessimists would like everyone to believe, there is solace in knowing that most terrorist groups, at least those of the left-wing, are not mad bombers and assassins running amuck, hell-bent on destroying society. However, the situation may not be as good as the optimists are inclined to think either. Oots demonstrated that terrorists have become

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[204] As discussed in Chapter III, emergency response teams in the United States do not have the necessary training and lack the proper equipment to deal with a nuclear terrorist attack *unless* the attack occurs at one of the U.S. nuclear facilities. This situation could be rectified easily with minimal cost for both training and equipment.

[205] Uri Ra'anan, Robert L. Pfiatzgraff, Jr., Richard H. Schultz, Ernst Halperin, and Igor Lukes, Hydra of Carnage: The International Linkages of Terrorism and Other Low-Intensity Operations — The Witnesses Speak (Lexington, Mass.: Lexington Books, 1986), p. 147.

highly selective in their choice of targets and the type of attack that would be conducted. He linked this premise to the terrorist's associated costs or risks (i.e., a simple, self-styled cost-benefit analysis). He avers that:

> terrorists are utility (profit) maximizers who, through terrorist acts, seek to gain at the expense of the government.[206]

Therefore, if the gains of making the attack exceed the risks involved with the attempting the attack then the terrorists will conduct the attack, even a nuclear one. This "expected utility" process[207] will be used by a nuclear terrorist to decide *if* an RDD, or another form of nuclear terrorism, will be used rather than a "conventional" terrorist weapon — either of which would be a *fait accompli* of unknown magnitude. As Kupperman and Trent noted:

> successful extortion and the undermining of the national decision-making processes do not require the actual use of such weapons by terrorists. The mere possession of them (WMDs) would focus widespread publicity on their cause and could provide significant political leverage.[208]

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[206] Oots, A Political Organizational Approach to Terrorism, p. 7.

[207] Michael Stohl, "States, Terrorism and State Terrorism," in Slater and Stohl, pp. 161-163."

[208] Kupperman and Trent, p. 51. Parenthetical notation added.

C. POLICY IMPLICATIONS

The importance of terrorist acts for policy makers is not in "the horrendous nature of the acts themselves but in their implications" for major policy shifts that affect internal and external relations.[209] The aim of any comprehensive policy on terrorism should not attempt to be an all-encompassing policy. Rather, it should attempt

> to *eliminate* conflict, but to decrease the likelihood that it will be violent and reactionary and to increase the chances that it will have constructive and creative outcomes.[210]

Nuclear terrorism, even more than "conventional" terrorism, requires a paradigmatic shift. Policies must be developed that will "deal directly with the emotions and perceptions being expressed and do not focus on the demands of the event."[211] The United States can no longer afford to maintain a policy that vacillates between near denial and moralistic hyperbole.

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[209] Grant Wardlaw, "State Response to International Terrorism," in Slater and Stohl, p. 207-209.

[210] J. David Singer, "Conflict Research, Political Action, and Epistemology," in Gurr, Handbook of Political Conflict, p. 491. Emphasis was in the original text.

[211] Jeanne N. Knutson, "The Terrorists' Dilemma," Terrorism Vol. 4, Nos. 1-2-3-4, 1980, p. 219.

By applying the "expected utility" or cost-benefit analysis logic used by the terrorists, the government's policies would reflect a better understanding of the terrorists' motives and provide more practical tools to combat the threat. To the government's detriment, however, is the fact that:

> decision-makers remain narrowly concerned with efficaciously concluding discrete events, and neither focus on nor utilize the rich opportunities which *they* have to improve *their* overall position.[212]

Combating terrorism in the nuclear realm will require more than the Reagan-Bush "saber-rattling," selective enforcement, and coercive diplomacy displayed by the U.S. actions taken against Nicaragua[213] and Libya.[214]

H. H. A. Cooper believes that intelligence is a key factor and can play a major role in the U.S. antiterrorism effort. Moreover, he states that "countermeasures which are not destructive of fundamental liberties can and should be taken."[215] The government must develop a positive and more

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[212] Ibid., p. 219-220. Emphasis was in the original text.

[213] See Bruce W. Jentleson, "The Reagan Administration Versus Nicaragua," in Alexander George and William E. Simons, eds., The Limits of Coercive Diplomacy (Boulder, Colo.: Westview Press, 1994), pp. 175-200.

[214] See Tim Zimmerman, "Coercive Diplomacy and Libya," in George and Simons, pp. 201-228.

[215] Cooper, "Terrorism and the Intelligence Function," in Kress et al., pp. 287-296.

proactive approach in order to seize the advantage of its expertise in dealing with terrorists.[216] Perhaps the most effective tool for combating terrorism at the disposal of the federal government is its seemingly unlimited intelligence capability.[217] At the international level, intelligence information is shared among the various federal agencies, both military and civilian, and with friendly governments — a valuable asset in tracking subnational groups and small terrorist bands that operate with relative freedom across international borders.[218] However, this tremendous asset can also become a liability at the national level. Intelligence information is not always shared within the federal law enforcement agencies, perhaps because of the parochial

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[216] One of the most interesting debates in Congress is a planned amendment to the Posse Comitatus Act of 1878 as part of the Comprehensive Terrorism Prevention Act of 1995. If approved, the amendment would allow the military to assist in emergency circumstances where chemical or biological weapons or devices are used.

[217] While this hypothesis may be disputed, George Bush recognized the importance of intelligence in combating terrorism. As vice president and head of the government's antiterrorism task force, he stressed that "success in combatting (sic) terrorism is predicated on the availability of timely and accurate intelligence." See Bush, Public Report of the Vice President's Task Force on Combatting Terrorism (Washington: Government Printing Office, 1986), p. 14. Parenthetical notation added.

[218] Ibid., p. 14.

nature of their intelligence sources.[219] This bureaucratic in-fighting must be minimized in the less stable world environment and the possibility of terrorists entering the nuclear arena.

D. CONCLUDING REMARKS

As discussed earlier, President Clinton is working with Congress to pass his administration's tough antiterrorism package. The president's proposed Omnibus Antiterrorist Act of 1995, known as Comprehensive Terrorism Prevention Act of 1995 on Capitol Hill, will allegedly strengthen the U.S. position against terrorism. Its passage will be better than existing laws and regulations; however, any legislation that becomes a "catch-all" package will fall short. Effective legislation to combat terrorism must be specific enough to combat the threat but not infringe upon the rights of ordinary citizens. This is

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[219] Following the Oklahoma City bombing, unconfirmed media reports indicated that *prior to* the bombing, the FBI and ATF had information on a potential bombing and a suspect, respectively. The information was not shared, which led to speculation that the attack could have been avoided. The attack at the A. P. Murrah federal building scarred these two agencies. If there is any good that can be found in the aftermath of the Oklahoma City bombing it is the consolidation of the federal government's antiterrorism effort. With FBI director William Freeh and his agency functioning as the clearinghouse for the U.S. effort coordination will become easier and a viable, more effective antiterrorist policy can be developed.

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terrorists to "go nuclear" examined in Chapter IV, a hierarchy of nuclear terrorism in the United States has been developed. The most likely form of nuclear terrorism would be an RDD because of its relative simplicity and could be conducted by any terrorist group capable of making a bomb. An attack at either a nuclear power reactor or a storage facility would be the next concern. It would most likely be carried out by a left-wing group because of the discipline and planning required for a successful attempt. The right-wing groups do not possess the characteristics or, more importantly, the necessary skills to successfully conduct an attack at a nuclear facility. An IND, either an intact stolen weapon or a crudely manufactured nuclear device, is considered the least likely form of nuclear terrorism because of the anticipated lack of technological expertise within today's terrorist groups. This should in no way though, be misconstrued to mean that an IND is not, and should not, be considered a plausible means of nuclear terrorism. The IND is still a serious security concern that must be considered as a possible means of conducting nuclear terrorism.

Nuclear terrorism in the United States is more of a threat than previously imagined by many scholars and government officials alike.[220] Through careful planning and thoughtful legislation the United States can be prepared for the worst possible form of terrorism — nuclear terrorism. Policy makers must "break-out" of the optimist and pessimist views of nuclear terrorism because such assessments are too restrictive. U.S. policy makers need to understand the terrorist mindset and the dynamics of "group think" if they are to develop any kind of effective policy to combat the specter of anticipated nuclear terrorism.

[220] Despite the reservations expressed about nuclear weapons in the 1940s and the nuclear power industry in the 1950s, the specter of nuclear terrorism was largely ignored. The same remains true today.

APPENDIX A. U.S. NUCLEAR POWER FACILITIES[221]

Name	Type	Operator	Commercial Operation
Arkansas One-1	PWR	Arkansas Power & Light Co.	12-1974
Arkansas One-2	PWR	Arkansas Power & Light Co.	03-1980
Beaver Valley-1	PWR	Duquesne Light Co.	10-1976
Beaver Valley-2	PWR	Duquesne Light Co.	11-1987
Big Rock Point	BWR	Consumers Power Co.	03-1963
Braidwood-1	PWR	Commonwealth Edison Co.	07-1988
Braidwood-2	PWR	Commonwealth Edison Co.	10-1988
Browns Ferry-1	BWR	Tennessee Valley Authority	08-1974
Browns Ferry-2	BWR	Tennessee Valley Authority	03-1975
Browns Ferry-3	BWR	Tennessee Valley Authority	03-1977
Brunswick-1	BWR	Carolina Power & Light Co.	03-1977
Brunswick-2	BWR	Carolina Power & Light Co.	11-1975
Byron-1	PWR	Commonwealth Edison Co.	09-1985
Byron-2	PWR	Commonwealth Edison Co.	08-1987
Callaway-1	PWR	Union Electric Co.	12-1984
Calvert Cliffs-1	PWR	Baltimore Gas & Electric Co.	05-1975
Calvert Cliffs-2	PWR	Baltimore Gas & Electric Co.	04-1977
Catawba-1	PWR	Duke Power Co.	06-1985
Catawba-2	PWR	Duke Power Co.	08-1986
Clinton-1	BWR	Illinois Power Co.	11-1987
Comanche Peak-1	PWR	Texas Utilities Generating Co.	08-1990
Cooper	BWR	Nebraska Public Power District	07-1974
Crystal River-3	PWR	Florida Power Co.	03-1977
Davis Besse-1	PWR	Toledo Edison Co.	07-1978
Diablo Canyon-1	PWR	Pacific Gas & Electric Co.	05-1985
Diablo Canyon-2	PWR	Pacific Gas & Electric Co.	03-1986
Donald Cook-1	PWR	Indiana & Michigan Power Co.	08-1975
Donald Cook-2	PWR	Indiana & Michigan Power Co.	07-1978
Dresden-2	BWR	Commonwealth Edison Co.	06-1970
Dresden-3	BWR	Commonwealth Edison Co.	11-1971
Duane Arnold-1	BWR	Iowa Electric Light & Power Co.	02-1975
Enrico Fermi-2	BWR	Detroit Edison Co.	01-1988
Farley-1	PWR	Alabama Power Co.	12-1977
Farley-2	PWR	Alabama Power Co.	07-1981
Fitzpatrick	BWR	Power Authority of the State of New York	07-1975

Name	Type	Operator	Commercial Operation
Fort Calhoun-1	PWR	Omaha Public Power District	06-1974
Grand Gulf-1	BWR	Mississippi Power & Light Co.	07-1985
H. B. Robinson-2	PWR	Carolina Power & Light Co.	03-1971
Haddam Neck	PWR	Connecticut Yankee Atomic Pwr Co.	01-1968
Hatch-1	BWR	Georgia Power Co.	12-1975
Hatch-2	BWR	Georgia Power Co.	09-1979
Hope Creek-1	BWR	Public Service Electric & Gas Co.	12-1986
Indian Point-2	PWR	Consolidated Edison Co.	08-1974
Indian Point-3	PWR	Power Authority of the State of New York	08-1976
Kewaunee	PWR	Wisconsin Public Service	06-1974
LaSalle-1	BWR	Commonwealth Edison Co.	01-1984
LaSalle-2	BWR	Commonwealth Edison Co.	10-1984
Limmerick-1	BWR	Philadelphia Electric Co.	02-1986
Limmerick-2	BWR	Philadelphia Electric Co.	01-1990
Maine Yankee	PWR	Maine Yankee Atomic Power Co.	12-1972
McGuire-1	PWR	Duke Power Co.	12-1981
McGuire-2	PWR	Duke Power Co.	03-1984
Millstone-1	BWR	Northeast Nuclear Energy Co.	03-1971
Millstone-2	PWR	Northeast Nuclear Energy Co.	12-1975
Millstone-3	PWR	Northeast Nuclear Energy Co.	04-1986
Monticello	BWR	Northern States Power Co.	06-1971
Nine Mile Point-1	BWR	Niagara Mohawk Power Co.	12-1969
Nine Mile Point-2	BWR	Niagara Mohawk Power Co.	03-1988
North Anna-1	PWR	Virginia Electric Power Co.	06-1978
North Anna-2	PWR	Virginia Electric Power Co.	12-1980
Oconee-1	PWR	Duke Power Co.	07-1973
Oconee-2	PWR	Duke Power Co.	09-1974
Oconee-3	PWR	Duke Power Co.	12-1974
Oyster Creek	BWR	General Public Utilities	12-1969
Palisades	PWR	Consumers Power Co.	12-1971
Palo Verde-1	PWR	Arizona Public Service	01-1986
Palo Verde-2	PWR	Arizona Public Service	09-1986
Palo Verde-3	PWR	Arizona Public Service	01-1988
Peach Bottom-2	BWR	Philadelphia Electric Co.	07-1974
Peach Bottom-3	BWR	Philadelphia Electric Co.	12-1974

Name	Type	Operator	Commercial Operation
Perry-1	BWR	Cleveland Electric Illuminating Co.	11-1987
Pilgrim-1	BWR	Boston Edison Co.	12-1972
Point Beach-1	PWR	Wisconsin Electric Power Co.	12-1970
Point Beach-2	PWR	Wisconsin Electric Power Co.	10-1972
Prairie Island-1	PWR	Northern States Power Co.	12-1973
Prairie Island-2	PWR	Northern States Power Co.	12-1974
Quad Cities-1	BWR	Commonwealth Edison	02-1973
Quad Cities-2	BWR	Commonwealth Edison	03-1973
R. E. Ginna	PWR	Rochester Gas & Electric Corp.	07-1970
River Bend-1	BWR	Gulf States Utilities Co.	06-1986
Salem-1	PWR	Public Service Electric & Gas Co.	06-1977
Salem-2	PWR	Public Service Electric & Gas Co.	10-1981
San Onofre-2	PWR	Southern California Edison	08-1983
San Onofre-3	PWR	Southern California Edison	04-1984
Seabrook-1	PWR	Public Service of New Hampshire	08-1990
Sequoyah-1	PWR	Tennessee Valley Authority	07-1981
Sequoyah-2	PWR	Tennessee Valley Authority	06-1982
Shearon Harris-1	PWR	Carolina Power & Light Co.	05-1987
South Texas-1	PWR	Houston Light & Power Co.	08-1988
South Texas-2	PWR	Houston Light & Power Co.	06-1989
St. Lucie-1	PWR	Florida Power & Light Co.	12-1976
St. Lucie-2	PWR	Florida Power & Light Co.	08-1983
Surry-1	PWR	Virginia Electric Power CO.	12-1972
Surry-2	PWR	Virginia Electric Power CO.	05-1973
Susquehanna-1	BWR	Pennsylvania Power & Light Co.	06-1983
Susquehanna-2	BWR	Pennsylvania Power & Light Co.	02-1985
Three Mile Island-1	PWR	General Public Utilities	09-1974
Trojan	PWR	Portland General Electric Co.	05-1976
Turkey Point-3	PWR	Florida Power & Light Co.	12-1972
Turkey Point-4	PWR	Florida Power & Light Co.	09-1973
Vermont Yankee	BWR	Vermont Yankee Nuclear Power Corp.	11-1972
Virgil C. Summer-1	PWR	South Carolina Electric & Gas Co.	01-1984
Vogtle-1	PWR	Georgia Power Co.	06-1987
Vogtle-2	PWR	Georgia Power Co.	05-1989
Waterford-3	PWR	Louisiana Power & Light Co.	09-1985

Name	Type	Operator	Commercial Operation
Wolf Creek	PWR	Kansas Gas & Electric Co.	09-1985
WPPSS-2	BWR	Washington Public Power Supply System	12-1984
Zion-1	PWR	Commonwealth Edison Co.	12-1973
Zion-2	PWR	Commonwealth Edison Co.	09-1974

TYPES OF U.S. NUCLEAR POWER REACTORS

PWR (Pressurized Water Reactor) -- In a PWR, "pressure is applied to the primary coolant system such that no wet vaporization of the coolant is permitted. The energy from nuclear fission of the fuel is transferred to the primary coolant temperature with some limited local vaporization. Heated primary cooling water is circulated through hydraulic loops to steam generators where the primary coolant energy is transferred to secondary cooling water which is vaporized and used to drive the turbines."[222]

BWR (Boiling Water Reactor) -- In a BWR, the reactor is "cooled by vaporization of water in the core, and the resulting steam is used to directly to drive a turbine. Forced recirculation of the water in the core permits a higher power density to be achieved. Steam is routed from the core to the upper reactor vessel plenum through steam separators and driers. The steam lines pass through the containment wall to the turbine. Subcooled liquid feedwater is returned to the reactor vessel."[223]

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[221] IAEA, Nuclear Power Reactors in the World, 1993, pp. 31-35. The actual locations of the reactors has been intentionally omitted.

[222] L. J. Ybarrando, C. W. Solbrig and H. S. Isbin, The Calculated Loss-of-Coolant Accident: A Review, (New York: Science Press, 1972), p. 2.

[223] Ibid., pp. 9, 12.

APPENDIX B. TERRORIST GROUPS TO WATCH[224]

Abu Nidal organization (ANO) [a.k.a. Fatah Revolutionary Council; Arab Revolutionary Council; Arab Revolutionary Brigades; Black September; and Revolutionary Organization of Socialist Muslims] - led by Sabri al-Banna; split from PLO (Palestinian Liberation Organization) in 1974; made up of various functional committees; comprised of several hundred dedicated members plus "militia" in Middle East and overseas; responsible for numerous bombings and assassinations; has received financial and operational support from Iraq, Syria, and Libya; operates in Middle East, northern Africa, Asia, Europe, and the Americas.

Al-Fatah [a.k.a. Al-'Asifa] - headed by Yasser Arafat; joined PLO in 1968 and became its lead organization in 1969; maintains several military and intelligence wings including *Force 17* and the *Western Sector;* membership figures are between 6,000 - 8,000; responsible for numerous bombings and other violent confrontations; has renounced terrorism and has not *"authorized"* any attacks since signing the Declaration of Principles (DOP) with Israel in 1993; has received political and financial support as well as weapons from Saudi Arabia, Kuwait, Jordan, the former Soviet Union, China, and North Korea; operates predominantly in the Middle East, but has operated throughout the world.

Al-Gama'a al-Islamiyya [a.k.a. The Islamic Group] - no known identifiable operational leader, but Shakyr Omar abd al-Rahman is spiritual leader; exact numbers unknown, but reportedly has several thousand dedicated members and several thousand sympathizers [most of whom are unemployed graduates and students]; responsible for attacks against Egyptian officials, Western tourists, and those opposed to Islamic extremism; receives support from Iran and Sudan and Afghan militant Islamic groups; has not claimed responsibility for any attacks outside Egypt.

Amal (Hope) - moderate Shiite Muslim fundamentalist group when it is compared to *Hizbollah;* see *Hizbollah* for details; receives financial and other support from Syria.

Black June (The Corrective Movement for Al-Fatah) - formed as a renegade *Black September* group in 1976; believed to have been reabsorbed by *Black September;* see *Abu Nidal organization* for details.

Black September - *Al-Fatah*'s military arm; based upon its intelligence branch *Jihaz ar-Razd;* see *Abu Nidal organization* for details.

Democratic Front for the Liberation of Palestine (DFLP) - formed in 1969 by extreme left-wing members of the *Popular Front for the Liberation of Palestine (PFLP);* Marxist-Leninist; only Palestinian liberation group that subordinates armed struggle to political struggle; supports Jewish national rights inside a liberated Palestine; anti-United States; has appealed to "progressive Israelis and Jews" to join their cause; about 300 members; responsible for numerous bombings in Middle East, predominantly Israel and the occupied territories; no known international connections although the group had received support from the former Soviet Union and China; operates predominantly in the Middle East.

15 May Organization - formed from the remnants of *Popular Front for the Liberation of Palestine - Special Operations Group (PFLP-SOG);* led by Muhammad al-Umari, a.k.a. Abu Ibrahim or the "bomb man" in Palestinian circles; reportedly disbanded in mid-1980s; less than 100 members; responsible for various bombings and attempted bombings of aircraft; has received logistical and financial support from Iraq; operates throughout the Middle East, Europe, East Asia, and the United States.

Force 17 - formed in early 1970s as personal security force of Arafat and other PLO leaders; has not claimed any terrorist activity outside Israel and occupied territories since 1985; exact numbers are unknown; responsible for bombings and shootings; operates predominantly in the Middle East, but has operated throughout the world.

HAMAS [a.k.a. Islamic Resistance Movement] - formed in late 1987 as an outgrowth of the Muslim Brotherhood; *Fatah*'s principal political rival; elements operate openly in mosques to raise funds and solicit support; other elements operate

clandestinely using terrorism as their main tool; unknown number of hard-core members with tens of thousands of supporters and sympathizers; responsible for numerous attacks in Israel and the occupied territories and Jordan; receives funding from Palestinian expatriates, Iran, some Saudi Arabian private citizens; operates throughout the Middle East, Europe, and North America.

Hizbollah (Party of God) [a.k.a. Islamic Jihad, Organization of the Oppressed on Earth, Revolutionary Justice Organization, Islamic Jihad for the Liberation of Palestine] - radical Shia (Shiite) group formed in Lebanon with strong anti-Western and anti-Israeli sentiment; closely allied with Iran; several thousand hard-core members and an unknown number of supporters and sympathizers throughout the world; responsible for numerous bombings and hostage-takings; receives substantial financial, operational, and political support from Iran; operates worldwide.

Jihad Group [a.k.a. al-Jihad Islamic Jihad, New Jihad Group, As-Sa'iqa Vanguards of Conquest, Talaa'al al-Fatah] - Islamic extremist group which has split into two factions [one headed by Abbud al-Zuman and the other headed by Dr. Ayman al-Zawahiri] with both regarding Shakyr Omar Abd al-Rahman as their spiritual leader; exact membership unknown, but reportedly has several thousand dedicated members and several thousand sympathizers; responsible for numerous bombings; receives support from militant Islamic groups and various Jihad factions; operates mainly in Egypt, but has membership throughout the Middle East, Asia, Europe, and North America.

Kahane Chai - extremist right-wing Israeli group; banned in Israel for its involvement in undermining the Middle East peace; membership unknown; responsible for bombings and shootings in the occupied territories; may have substantial financial support in U.S.; operates in Israel and the occupied territories.

Palestine Liberation Front (PLF) - extremist group that broke away from *Popular Front for the Liberation of Palestine-General Command (PFLP-GC)* in mid-1970s; split again into pro-PLO, pro-Syrian, and pro-Libyan factions -- all of which are anti-Western; less than 100 known members; responsible for numerous bombings, shootings; receives financial, and military support

from the *PLO*, Libya and Iraq; various factions based throughout Middle East, but has operated in Europe and North America.

Palestine Liberation Organization (PLO) - legitimate "leader" in Palestinian cause for a free Palestine; has splintered into various factions, most of which *do not* support Arafat's signing of the DOP with Israel, as a result of PLO leadership's desire to normalize relations with Israel; has renounced violence and terrorism as weapons for Palestinian solution; has become the voice of the Palestinian statehood movement; exact membership numbers unknown; now receives support from recognized governments throughout the world; operates worldwide.

Palestinian Islamic Jihad (PIJ) - originated from militant Palestinian fundamentalists in the 1970s; loosely affiliated factions, rather than cohesive group; all elements desire creation of an Islamic Palestine; strongly anti-Israel and anti-United States; membership is unknown; responsible for numerous bombings and shootings; outside assistance is uncertain, but reportedly receives aid from Iran, Syria, and numerous sympathetic groups throughout the world; operates mainly in Israel, but has operated elsewhere in the Middle East, Europe, and possibly North America.

Popular Front for the Liberation of Palestine (PFLP) - Marxist-Leninist group that was a *PLO* member; founded in 1967 by George Habash; second most important military and political group in the Palestinian cause; advocates Pan-Arab revolution and opposed the 1993 DOP, resulting in *PFLP*'s suspension in the *PLO;* anti-Israel, anti-United States, anti-moderate "Western secularized and tainted" Arab governments; membership is unknown; responsible for bombings, shootings, and hostage-takings; outside assistance is unknown; operates mainly in the Middle East.

Popular Front for the Liberation of Palestine - General Command (PFLP-GC) - military organization of *PFLP*; member of the Rejection Front; receives support from Libya.

Puka Inti [a.k.a. Sol Rojo, Red Sun] - subversive group that made peace with Ecuadorian government in 1989; anti-U.S.; responsible for bombings of Ecuadorian government buildings;

membership is no more than 100; no external aid; operates mainly in Ecuador; has supporters throughout the Americas.

Red Army [Sekigun] - formed in 1969 from disgruntled students; several members joined forces with *Keihin Ampo Kyoto* to form *Rengo Sekigun;* extremely disciplined members; socialistic, nihilistic, pro-Palestinian, anti-United States; responsible for hijackings, bombings in Asia, Middle East, Europe, and the Americas; membership is believed to be about 100 dedicated members; has links to various Asian, European, and Middle Eastern terrorist groups although actions in Japan are now negligible; receives support from various pro-Palestinian groups as well as Iraq and South Yemen.

Sikh Terrorism - desire establishment of the independent Sikh state of Khalistan [Land of the Pure] from Indian territory; comprised of various militant factions *[Babbar Khalsa, Azad Khalistan Babbar Khalsa Force, Khalistan Liberation Front, Khalistan Commando Force; Khalistan National Army]* which operate under "umbrella" organizations such as the Second Panthic Committee; numbers are unknown, but believed to be in the tens of thousands; responsible for numerous bombings, shootings, and hijackings; most external funding comes from Sikh expatriates throughout the world; operates throughout South Asia, Western Europe, and North America.

U.S. Right-Wing Groups[225] - anti-government groups throughout the U.S.; loosely organized; may be responsible for numerous attacks on federal agents and property; exact membership unknown [numbers for all groups estimated at 10,000 - 250,000]; operations are restricted to the United States.

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[224] Information was extracted from numerous media reports over the last eighteen months. In addition, the following sources were instrumental for some of the details: U.S. State Department, Patterns of Global Terrorism 1993; and Dobson and Payne, The Terrorists.

[225] This group includes, but is not limited to, the various militia groups known to exist in at least twenty-six states, "skinheads," neo-Nazis, Posse Comitatus, E Pluribus Unum, and the Ku Klux Klan.

LIST OF REFERENCES

Alexander, Yonah, David Carlton, and Paul Wilkinson, eds. Terrorism: Theory and Practice. Boulder, Colo.: Westview Press, 1979.

Alexander, Yonah and Charles K. Ebinger, eds. Political Terrorism and Energy: The Threat and Response. New York: Praeger Publishers, 1982.

Alexander, Yonah and Robert A. Kilmarx, eds. Political Terrorism and Business: The Threat and Response. New York: Praeger Publishers, 1979.

Arendt, Hannah. "Reflections on Violence," Anthology: Selected Essays from Thirty Years of *The New York Review of Books* (1963-1993). New York: NYREV, 1993.

Bassiouni, Cherif M., ed. International Terrorism and Political Crimes. Springfield, Ill.: Charles C. Thomas Publishers, 1975.

Bell, J. Bowyer. A Time of Terror: How Democratic Societies Respond to Revolutionary Violence. New York: Basic Books, Inc., 1979.

Beres, Louis Rene. Terrorism and Global Security: The Nuclear Threat. Boulder, Colo.: Westview Press, 1979.

_____. Apocalypse: Nuclear Catastrophe in World Politics. Chicago: The University of Chicago Press, 1980.

Belyaninov, Kirill. "Nuclear Nonsense, Black-Market Bombs, and Fissile Flim-Flam," Bulletin of Atomic Scientitst Vol. 50, 01 March 1994.

Binnendijk, Hans, ed. Strategic Assessment 1995: U.S. Security Challenges in Transition. Washington: Institute for National Strategic Studies, 1995.

Bush, George. Public Report of the Vice President's Task Force on Combatting Terrorism. Washington: Government Printing Office, 1986.

Carlton, David and Carlo Schaerf, eds. International Terrorism and World Security. New York: John Wiley & Sons, 1975.

Clinton, William J. A National Security Strategy of Engagement and Enlargement. Washington: Government Printing Office, 1995.

Corelli, R. and C. Mellow. "Nuclear Nightmares," MacLeans's Vol. 104, 23 December 1991.

Crenshaw, Martha. "An Organizational Approach to the Analysis of Political Terrorism," Orbis: A Journal of World Affairs Vol. 29, No. 3, Fall 1985.

_____. "Theories of Terrorism: Instrumental and Organizational Approaches," in David C. Rapoport, ed. Inside Terrorist Organizations. London: Frank Cass & Company, 1986.

della Porta, Donatella, ed. Social Movements and Violence. Greenwich, Conn.: JAI Press, Inc., 1992.

DiPaolo, Peter J. "Nuclear Terrorism: How Non-state Actors Can Hold A Country Hostage." unpublished, 15 September 1994.

Dobson, Christopher and Robert Payne. The Terrorists: Their Weapons, Leaders, and Tactics. New York: Facts on File, Inc., 1979.

Economist Editorial Staff. "Uranium, Plutonium, Pandemonium," Economist Vol. 327, 05 June 1993.

Economist Editorial Staff. "How to Steal An Atom Bomb," Economist Vol. 327, 05 June 1993.

Evancoe, Paul R. "Nuclear Crisis Response Effort Must Stay Robust," National Defense, April 1995.

_____. "Germinating Technology Feeds A-Weapon Scenario," National Defense, October 1994.

Evancoe, Paul R. and Knight Campbell. "Chemical Weapons Lurk As Terrorists' 'Surprise,'" National Defense, January 1995.

Faulkner, Peter, ed. The Silent Bomb: A Guide to the Nuclear Energy Controversy. New York: Random House, 1977.

Feierabend, Ivo K., Rosalind L. Feierabend, and Ted Robert Gurr. Anger, Violence, and Politics: Theories and Research. Englewood Cliffs, N.J.: Prentice-Hall Inc., 1972.

Frey, R. G. and Christopher W. Morris, eds. Violence, Terrorism, and Justice. Cambridge: Cambridge University Press, 1991.

Funke, Manfred. "Terrorismus: Ermittlungsversuch zu einer Herausforderung," Terrorismus: Untersuchungen zur Strategie und Struktur revolutionaerer Gewaltpolitik. Bonn: Bundes-zentrale fuer politische Bilding, 1977.

Ga-lor, Noemi. International Cooperation to Suppress Terrorism. New York: St. Martin's Press, 1985.

Garfinkle, Adam M., ed. Global Perspectives on Arms Control. New York: Praeger Publishers, 1984.

Geissler, H. ed., Der Weg in die Gewalt. Munich: Olzog, 1978.

Gurr, Ted Robert, ed. Handbook of Political Conflict: Theory and Conflict. New York: The Free Press, 1980.

_____. Why Men Rebel. Princeton, N.J.: Princeton University Press, 1970.

Hartman, Louis F., Myles M. Bourke, Patrick W. Skehan, Stephen J. Hartdegen, and Gerard S. Sloyan, eds., The New American Bible, Camden, N.J.: Thomas Nelson, Inc., 1971.

Hogerton, John F. Atomic Power Safety. Oak Ridge, Tenn.: U.S. Energy Rresearch and Development Administration (ERDA), 1964.

International Atomic Energy Agency (IAEA). Nuclear Power Reactors in the World, 1993. Vienna: IAEA, 1994.

_____. Emergency Planning and Preparedness for Nuclear Facilities: Proceedings of the International Symposium Held in Rome 4-8 November 1985. Vienna: IAEA, 1986.

Jenkins, Brian M. The Potential for Nuclear Terrorism. Santa Monica, Calif.: RAND Corporation, 1977.

_____. The Consequences of Nuclear Terrorism. Santa Monica, Calif.: RAND Corportation, 1979.

_____. "The Study of Terrorism: Definitional Problems," in Yonah Alexander and John M. Gleason, eds., Behavioral and Quantitative Perspective on Terrorism. New York: Pergamon Policy Studies, 1979.

_____. "Will Terrorists Go Nuclear?" Orbis: A Journal of World Affairs Vol. 29, No. 3, Fall 1985.

Katz, Lee Michael, "Terrorism Package Ready for Congress," USA Today, 30 January 1995.

Kegley, Charles W. Jr., ed., International Terrorism: Characteristics, Causes, Controls. New York: St. Martin's Press, 1990.

Knutson, Jeanne N. "The Terrorists' Dilemmas: Some Implicit Rules of the Game," Terrorism Vol. 4, Nos. 1-2-3-4, 1980.

Kupperman, Robert H. and Darrell M. Trent. Terrorism: Threat, Reality, Response. Stanford, Calif.: Hoover Institution Press, 1979.

Leventhal, Paul and Yonah Alexander, eds. Nuclear Terrorism: Defining the Threat. McLean, Vir.: Pergamon-Brassey's International Defense Publishers, 1986.

_____. Preventing Nuclear Terrorism: The Report and Papers of the International Task Force on Prevention of Nuclear Terrorism. Lexington, Mass.: Lexington Books, 1987.

Livingston, Marius H., Lee Bruce Kress, and Marie G. Wanek, eds. International Terrorism in the Contemporary World. Westport, Conn.: Greenwood Press, 1978.

Livingston, Steven. The Terrorism Spectacle. Boulder, Colo.: Westview Press, 1994.

Midlarsky, Manus I., Martha Crenshaw, and Fumihiko Yoshida. "Why Violence Spreads," International Studies Quarterly Vol.24, No. 2, June 1980.

Naimark, Norman M. "Terrorism and the Fall of Imperial Russia," Terrorism Vol. 2, No. 2, Summer 1990.

Nuclear Regulatory Commission. The Weekly Information Report to the Commissioners. Washington: Government Printing Office, 27 April 1984.

Oots, Kent Layne. A Political Organization Approach to Transnational Terrorism. Westport, Conn.: Greenwood Press, 1986.

_____. "Organizational Perspectives on the Formation and Disintegration of Terrorist Groups," Terrorism: An International Journal Vol. 12, No. 3, 1989.

Pine, Art. "Secret Operation Safeguarded Uranium," Los Angeles Times, 24 November 1994.

Post, Jerrold M. "Narcissism and the Charismatic Leader-Follower Relationship," Political Psychology Vol. 7, No. 4, 1986.

Powers, John R. and Joseph E. Muckerman. "Rethink the Nuclear Threat," Orbis: A Journal of World Affairs Vol. 38, No. 1, Winter 1994.

Prodigy ® interactive personal service, "Schools Lax on Radioactive Rules," Associated Press, 15 April 1995.

Ra'anan, Uri, Robert L. Pflatzgraff, Jr., Richard H. Shultz, Ernst Halperin, and Igor Lukes. Hydra of Carnage: The International Linkages of Terrorism and Other Low-Intensity Operations — The Witnesses Speak. Lexington, Mass.: Lexington Books, 1986.

Rapoport, David C. and Yonah Alexander, eds. The Rationalization of Terrorism. Frederick, Md.: Aletheia Books, 1982.

_____. The Morality of Terrorism: Religious and Secular Justifications. New York: Columbia University Press, 1989.

Reich, Walter, ed. The Origins of Terrorism: Psychology, Ideology, Theology, States of Mind. Cambridge: Press Syndicate of the University of Cambridge, 1990.

Sagan, Scott D. and Kenneth N. Waltz. The Spread of Nuclear Weapons: A Debate. New York: W. W. Norton & Co., 1995

Schreiber, Jan Edward. The Ultimate Weapon: Terrorists and World Order. New York: William Morrow and Company, Inc., 1978.

Shalikashvili, John M. National Military Strategy of the United States of America. Washington: Government Printing Office, 1995.

Shemella, Paul. "Defusing Mega Weapon Aim of Revised Doctrine," National Defense, January 1994.

Shevtsova, Lilia, "The August Coup and the Soviet Collapse," Survivaal: The IISS Quarterly Vol. 34, No. 1, Spring 1992.

Shultz, Richard H. Jr. and Stephen Sloan. Responding to the Terrorist Threat: Security and Crisis Management. New York: Pergamon Press, 1980.

Slater, Robert O. and Michael Stohl. Current Perspectives on International Terrorism. New York: St. Martin's Press, 1988.

Toffler, Alvin and Heidi Toffler. War and Anti-War: Survival at the Dawn of the 21st Century. Boston, Mass.: Little, Brown and Co., 1993.

U.S. Congress. Environmental Crimes at DOE's Nuclear Weapons Facilities. Hearing before the Subcommittee on Transportation and Hazardous Materials of the House Committee on Energy and Commerce, 101st Cong., 1st sess., October 5, 1989. Washington: Government Printing Office, 1989.

U.S. Department of State. Patterns of Global Terrorism 1993. Washington: Government Printing Office, 1994.

U.S. President's Commission on the Accident at Three Mile Island. The Accident at Three Mile Island: Emergency Preparedness, Emergency Response. Washington: Government Printing Office, 1979.

Webb, Richard E. The Accident Hazards of Nuclear Power Plants. Amherst, Mass.: University of Massachusetts Press, 1976.

Wolfgang, Marvin E., ed. The Annals of the American Academy of Political and Social Science: *International Terrorism* Vol. 463, September 1982.

Ybarrando, L. J., C. W. Solbring, and H. S. Isbin. The "Calculated" Loss-of-Coolant Accident: A Review. New York: Science Press, 1972.

Zawodny J. K. "International Organizational Problems and the Sources of Tensions of Terrorist Movements as Catalysts of Violence," Terrorism Vol. 1, Nos. 3/4, 1978.

BIBLIOGRAPHY

Alexander, Yonah and Richard Latter, eds. Terrorism and the Media: Dilemmas for Government, Journalists and the Public. McLean, Vir.: Brassey's (US) Inc., 1990.

Anderson, Christopher. "Livermore Faces Forces of Change," Science Vol. 264, No. 5157, 15 April 1994.

Atlantic Council of the United States. Nuclear Power and Nuclear Weapons Proliferation: Report of the Atlantic Council's Nuclear Fuels Policy Working Group Vol. 1. Boulder, Colo.: Westview Press, 1982.

Barone, Michael. "A Brief History of Zealotry in America," U.S. News & World Report Vol. 118, No. 18, 08 May 1995.

Boorman, Scott A. The Protracted Game: A Wei-ch'i Interpretation of Maoist Revolutionary Strategy. New York: Oxford University Press, 1969.

Carter, Luther. "Let's Use It," Bulletin of Atomic Scientists Vol. 50, 01 May 1994.

Chelkowski, Peter J. and Robert J. Pranger, eds. Ideology and Power in the Middle East. Durham, N.C.: Duke University Press, 1988.

Coates, James. Armed and Dangerous: The Rise of the Survivalist Right. New York: The Noonday Press, 1988.

Cooperman, Alan and Kirill Belyaninov. "Moonlighting by Modem in Russia," U.S. News & World Report Vol. 118, No. 15, 17 April 1995.

Crenshaw, Martha. "How Terrorism Declines," Terrorism and Political Violence Vol. 3, No. 1, Spring 1991.

Dann, Uriel. King Hussein and the Challenge of Arab Radicalism. New York: Oxford University Press, 1989.

Dornan, James E., Jr., ed. United States National Security Policy in the Decade Ahead. New York: Crane, Russak, 1978.

Duffy, Brian and Matthew Cooper. "Dry Holes, Dead Ends," U.S. News & World Report Vol. 118, No. 19, 15 May 1995.

Duffy, Brian. "The End of Innocence," U.S. News & world Report Vol. 118, No. 17, 01 May 1995.

_____. "Remaking the FBI: A Former G-Man Leads the World's Best Investigators," U.S. News & World Report Vol. 118, No. 17, 01 May 1995.

Edwards, Mike. "Living With thte Monster — Chornobyl," National Geographic Vol. 186, No. 2, August 1994.

Ehrenfeld, Rachel. Narco-terrorism: How Governments Around the World Have Used the Drug Trade to Finance and Further Terrorists Activities. New York: Basic Books, 1990.

Economist Editorial Staff. "The Plutonium Racket," Economist Vol. 332, No. 7877, 20 August 1994.

_____. "France and Terrorists: Jackal Caged," Economist Vol. 332, No. 7877, 20 August 1994.

Erickson, Richard J. Legitimate Use of Military Force Against State-Sponsored International Terrorism. Maxwell Air Force Base, Ala.: Air University Press, 1989.

Fontaine, Roger W. Terrorism: The Cuban Connection. New York: Crane, Russak & Co., 1988.

Gest, Ted and Scott Minerbrook. "Following the Trail of Terror," U.S. News & World Report Vol. 118, No. 17, 01 May 1995.

Hanson, Richard. "A Deepening Sense of Vulnerability," U.S. News & World Report Vol. 118, No. 17, 01 May 1995.

Hartung, William D. And Weapons For All: How America's Multibillion Dollar Arms Trade Warps Our Foreign Policy and Subverts Democracy at Home. New York: Harper Collins, 1994.

Heckrotte, Warren and George C. Smith, eds. Arms Control in Transition: Proceedings of the Livermore Arms Control Conference. Boulder, Colo.: Westview Press, 1983.

Hiatt, Fred. "Paying Russia to Destroy Nuclear Weapons: Critics Call Program a Dud," Washington Post, 12 February 1995.

Hilts, Philip J. "Fallout Risk Near Atom Tests Was Known, Documents Show," The New York Times, 15 March 1995.

Hoffman, Bruce. The World Trade Center Bombing, Three Mile Island Intrusion and the Potential Threat to U.S. Nuclear Power Facilities: Testimony Before Congress. Santa Monica, Calif.: RAND Corporation, 1993.

Jenkins, Brian Michael. "No Market for Sellers of Plutonium; Reports Exaggerating the Terrorist Risks Are Needlessly Alarmist," Los Angeles Times, 11 November 1994.

Kennedy, Paul, ed. Grand Strategies in War and Peace. New Haven, Conn.: Yale University Press, 1991.

Kupperman, Robert H. "United States Becoming Target for Terror Forays," National Defense, January 1995.

_____. "U.S. Policy Must Be Altered to Defeat Terrorist Threat," National Defense, January 1995.

Laurance, Edward J. The International Arms Trade. New York: Lexington Books, 1992.

Lief, Louise and Ian James. "The Curious Tale of a Terrorist," U.S. News & World Report Vol. 118, No. 19, 15 May 1995.

Leites, Nathan. "Understanding the Next Act," Terrorism, Vol. 3, No. 1-2, 1979.

Lippman, Thomas W. "Russia-Iran Atomic Deal Irks U.S.," Washington Post, 11 February 1995.

Mackey, Sandra. Passion and Politics: The Turbulent World of the Arabs. New York: Dutton, 1992.

May, Ernest R., ed. American Cold War Strategy: Interpreting NSC 68. Boston: Bedford Books, 1993.

McIntyre, John J., ed. The Future of Conflict. Washington: National Defense University Press, 1979.

Meddis, Sam Vincent and Bruce Frankel. "Don't Rest on Laurels in War on Terrorism," USA Today, 14 February 1995.

Mueller, John. Retreat From Doomsday: The Obsolescence of Major War. New York: Basic Books, 1989.

Murphy, John Francis. Punishing International Terrorists: The Legal Framework for Policy Initiatives. Totowa, N. J.: Rowman & Allansheld Publishers, 1985.

Organisation for Economic Co-operation and Development (OECD) Nuclear Energy Agency (NEA). Chernobyl and the Safety of Nuclear Reactors in OECD Countries. Paris: OECD, 1987.

Paret, Peter, ed. Makers of Modern Strategy: From Machiavelli to the Nuclear Age. Princeton, N.J.: Princeton University Press, 1986.

Pasternak, Douglas and Timothy M. Ito. "Safer Buildings, At a Price," U.S. News & World Report Vol. 118, No. 17, 01 May 1995.

Powers John R. and Joseph E. Muckerman. "Rethink the Nuclear Threat," Orbis: A Journal of World Affairs Vol. 38, No. 1, Winter 1994.

Prodigy ® interactive personal service, "$230B Estimate May Be Optimistic," Associated Press, 03 April 1995.

_____. "Maine Nuke Plant Full of Cracks," Associated Press, 03 April 1995.

_____. "Extremists Recruited Terrorists," Associated Press, 03 April 1995.

_____. "Perry Fails to Dissuade Russia," Associated Press, 03 April 1995.

_____. "Nuclear Plants Told to Protect Against Terrorist Bombings," Associated Press, 04 August 1994.

Reuters News Agency, "Clinton Wants Terrorism 'Gaps' Closed," Washington Times, 11 February 1995.

Richelson, Jeffrey T. The U.S. Intelligence Community. Cambridge, Mass.: Ballinger Publishing Company, 1989.

Robbins, Carla A. The Cuban Threat. New York: McGraw-Hill Book Co., 1983.

Roberts, Steven V. with Ted Gest, Kenneth T. Walsh and James Popkin. "After the Heartbreak," U.S. News & World Report Vol. 118, No. 18, 08 May 1995.

Rothberg, Donald M. "Nuclear Bomb Makers Turn Focus to Countering Proliferation," Los Angeles Times, 20 November 1994.

Schlefer, Jonathan. "Nuclear Terrorism," Technology Review Vol. 94, No. 3, April 1991.

Schreiber, Jan Edward. The Ultimate Weapon: Terrorists and World Order. New York: William Morrow and Company, 1978.

Seale, Patrick. Abu Nidal: A Gun For Hire. New York: Random House, 1993.

Shapiro, Joseph P. "An Epidemic of Fear and Loathing," U.S. News & World Report Vol. 118, No. 18, 08 May 1995.

Sloan, Stephen. Beating International Terrorism: An Action Strategy for Preemption and Punishment. Maxwell Air Force Base, Ala.: Air University Press, 1986.

Simon, Jeffrey D. "Time for a New Look at Terrorism," USA Today, 07 December 1994.

Snell, Albert E. and Edward J. Keusenkothen. "Mass Destruction Weapons Enter Arsenal of Terrorists," National Defense, January 1995.

Spector, Leonard S. with Jacqueline R. Smith. Nuclear Ambitions: The Spread of Nuclear Weapons 1989-1990. Boulder, Colo.: Westview Press, 1990.

Tharp, Mike. "Thunder On the Far Right," U.S. News & World Report Vol. 118, No. 17, 01 May 1995.

Thibault, George Edward. Dimensions of Military Strategy. Washington: National Defense University, 1987.

U.S. Congress. Prohibition of Nuclear Weapons in Latin America. Hearing before the Senate Committee on Foreign Relations, 97th Cong., 1st sess., September 22, 1981. Washington: Government Printing Office, 1981.

_____. Treaty of Tlatelolco. Hearing before the Senate Committee on Foreign Relations, 95th Cong., 2nd sess., August 15, 1978. Washington: Government Printing Office, 1978.

_____. U.S. Plans and Programs Regarding Dismantling of Nuclear Weapons in the Former Soviet Union. Hearing before the Senate Committee on Foreign Relations, 102nd Cong., 2nd sess., July 27, 1992. Washington: Government Printing Office, 1992.

U.S. News & World Report Editorial Staff. "Terror in the Heartland: Oklahoma City," U.S. News & World Report Vol. 118, No. 17, 01 May 1995.

Zimmerman, Tim and Douglas Pasternak. "Critical Mass," U.S. News & World Report Vol. 118, No. 15, 17 April 1995.

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12. Major Karl Brenstuhl, U.S. Marine Corps 1
Central Intelligence Agency
OMA, OHB
Washington, D.C. 22101

13. Dr. Anthony Fainberg 1
Congress of the United States
Office of Technology Assessment
Washington, D.C. 20510-8025

14. Dr. Kathleen Bailey 1
Center for Security and Technology Studies
Lawrence Livermore National Laboratory
Post Office Box 808, L-19
Livermore, Calif. 94551

15. Mr. Michael A. Farmer 1
Pacific Northwest Laboratory
901 D Street S.W.
Suite 900
Washington, D.C. 20024-2115

16. Mr. Domenick A. DiPaolo 4
17134 Kingfish Lane West
Sugarloaf Key, Fla. 33042-3615